

CHAPTER 9.2

REGULATION OF STORMWATER DETENTION*

Section 9.2-1. Purpose.

Realizing that development is crucial to the promotion of industry and jobs, business and commerce, housing, and private and public revenue, it is hereby important to prevent future drainage problems which waste private and public resources when the situation can be controlled through measures which will not make the cost of development prohibitive.

Therefore, the purpose of this Ordinance is to diminish threats to public health and safety caused by the runoff of excessive stormwater; reduce economic losses to individuals and the community at large; and protect, conserve and promote the orderly development of land and water resources. Its purpose is also to establish administrative and enforcement procedures to evaluate and regulate on a case-by-case basis the impact that proposed developments of all types have to stormwater run-off on that development and on surrounding areas and to require, if needed, that all proposed developments provide for adequate stormwater retention and detention. The provisions of this Ordinance further regulate, guide and control:

- a. The subdivision layout, redevelopment, and improvement of lands located within the City of Laurel;
- b. The construction of buildings and drainage of the sites on which structures are located, including parking and other paved areas; and,
- c. The design, construction and maintenance of stormwater drainage facilities and systems.

Source: Ordinance No. 1366-2000, §1, 4-4-00

Section 9.2-2. Administrative Responsibility and Review.

1. The City Engineer and/or his (her) appointed consulting representative is here designated as the administrator of this Ordinance and shall have the primary responsibility for its implementation and enforcement.

Source: Ordinance No. 1399-2002, §2, 200.1, 2-19-02

2. The City Engineer and/or his (her) appointed consulting representative shall review and assist the Inspection Department on request for submittal and shall evaluate the proposed development on a case-by-case basis to determine whether that development will significantly increase stormwater runoff. This determination will be based on the following factors:

- (a) Location and size of the development;
- (b) Slope and soil condition;
- (c) Existing drainage systems; and,
- (d) Other considerations which may pertain to the discharge of stormwater from the

* Editor's Note – Ordinance No. 1366-2000, §§ 1---6, adopted April 4, 2000, did not specify the manner of codification, but was included herein as Ch. 9.2, §§9.2-1---9.2-6, at the editor's discretion.

development of this site.

Source: Ordinance No. 1399-2002, §2, 200.2, 2-19-02

3. Before filing a stormwater retention/detention plan, the applicant shall meet with the City Engineer and/or his (her) appointed consulting representative in a pre-filing meeting to discuss the proposed stormwater retention/detention plan.

Source: Ordinance No. 1366-2000, §2, 4-4-00; Ordinance No. 1399-2002, §2, 200.3, 2-19-02

Section 9.2-3. General Criteria and Standards.

1. *Applicability:* This Ordinance shall apply to any residential development of five (5) acres or more or any non-residential development of three (3) acres or more. This Ordinance shall also apply to any residential development of less than five (5) acres or any non-residential development of less than three (3) acres but have fifty percent (50%) or greater impervious surface.

Source: Ordinance No. 1399-2002, §3, 300.1, 2-19-02

2. *Limitation on Stormwater Runoff:* No development shall be undertaken that increases the rate of surface runoff to downstream property owners or drainage systems.
3. *Detention of Excess Stormwater Runoff:* The increased stormwater run-off resulting from the proposed development shall be detained by the provision of retention or detention facilities.
4. *Storage Capacity:* Retention or detention facilities shall be designed with sufficient capacity to accommodate all run-off caused by the development in excess of that run-off which would occur from the site if left in its natural, undeveloped condition. This storage shall be sufficient to store all excess flows for the twenty-five (25) year storm of twenty-four (24) hour duration.

Source: Ordinance No. 1399-2002, §3, 300.4, 2-19-02

5. *Channel Stability:* The stormwater run-off from the proposed development shall not increase channel instability downstream.
6. *Retention/Detention Facilities in Floodplains:* If detention storage is provided within a floodplain of a major stream, storage volume for the facility may be provided above/below the high water elevations established for that floodplain with banks 24" higher than floodplain. No retention/detention facility should be located in a regulatory floodway.

Source: Ordinance No. 1399-2002, §3, 300.6, 2-19-02

7. *Stormwater Bypass:* Drainage systems shall have adequate capacity to bypass through the development the existing flow from all upstream areas.

Source: Ordinance No. 1366-2000, §3, 4-4-00

Section 9.2-4. Improvement Regulation.

1. *Required Information:* The following information and data prepared and certified by a registered professional engineer in the State of Mississippi shall be furnished with the plans of each proposed residential, commercial and industrial development.

a. *Contour Map:* A topographic map with two (2) foot minimum interval contours of the land to be developed and such adjoining land whose topography may affect the layout or drainage of the subdivision. On such a map, the following shall be shown:

- (1) The banks and centerline of streams and channels.
- (2) The normal shoreline of lakes, ponds, and retention/detention basins, and lines of inflow and outflow.
- (3) The location, size and slope of stormwater conduits and drainage swales.
- (4) Storm, sanitary and combined sewers and outfalls of record.
- (5) Delineation of upstream and downstream drainage features and watersheds which might be affected by the development.
- (6) Base flood (25-year) elevations and regulatory floodways which have been identified for the property.

Source: Ordinance No. 1399-2002, §4, 400.1a(6), 2-19-02

(7) Environmental features including the limits of wetlands areas and any designated natural areas.

b. *Drainage Plan:* A comprehensive drainage plan designed to safely and completely handle the stormwater runoff and to detain increased stormwater runoff. This plan shall provide and be accompanied by maps and/or other descriptive material showing the following;

- (1) The extent and area of each watershed tributary to the drainage channels in the development.
- (2) The storm sewers and other storm drains to be built, the basis of their design, the outfall and outlet locations and elevations, receiving stream or channel and its high water elevation and the functioning of the drains during high water conditions.
- (3) Existing streams and floodplains to be maintained and new channels to be constructed including their locations, cross-sections and profiles.
- (4) Proposed culverts and bridges to be built including their materials, elevations, waterway openings and basis of design.
- (5) Existing retention/detention facilities to be maintained, enlarged or altered and new facilities to be built including their design.

- (6) The estimated location and percentage of impervious surfaces existing and expected to be constructed when the development is completed.
- (7) The slope, type, and size of all sewers and other waterways.
- (8) Any proposed environmental enhancement or mitigation features.
- (9) Retention/detention basins to be built including a plot or tabulation of storage volumes with corresponding water surface elevations and of the basin outflow rates for those water surface elevations.
- (10) For all retention/detention basins, design hydrographs of inflow and outflow for the twenty-five (25) peak flows from the site under natural and developed conditions.

Source: Ordinance No. 1399-2002, §4, 400.1b(10), 2-19-02

- (11) The formula for determining the storage for a retention/detention basin is:

$$\text{Volume (acre-feet) equals (=) Runoff of 100-Year Storm on developed drainage area less (-) Runoff of 100-Year Storm on undeveloped drainage area less (-) Runoff from offsite that naturally flows through the drainage area.}$$
- (12) The live detention storage to be provided shall be calculated on the basis of the twenty-five (25) year frequency rainfall as published by the U. S. Weather Bureau for this area.

Source: Ordinance No. 1399-2002, §4, 400.1b(12), 2-19-02

- (13) Landscaping plan for retention/detention facility.
- (14) One (1) or more typical cross-sections of all existing and proposed channels or other open drainage facilities, showing the elevation of the existing land and the proposed changes thereto, together with the high water elevations expected from stormwater runoffs under the controlled conditions called for by this Ordinance, and the relationship of structures, street and other utilities.

2. *Detention Basins:* Detention basins shall be constructed to temporarily detain the stormwater runoff in excess of the volumes of runoff occurring on the site before development and will conform to the following standards:

- a. Storage Volumes: The volume of storage provided in these basins, together with such storage as may be authorized in other detention facilities, shall be sufficient to control the excess runoff from the twenty-five (25) year storm of any duration.

Source: Ordinance No. 1399-2002, §4, 400.2(a), 2-19-02

- b. Maximum Depth: The maximum planned depth of storm-water stored shall not exceed five (5) feet unless natural ground conditions lend themselves to greater depths.
- c. Approach Slopes: The approach slopes of the basin shall conform as closely as possible

to natural land contours. Regrading is preferable is necessary to keep the slopes under ten percent (10%). Erosion control measures shall be provided as well as devices or measures to insure public safety.

- d. Outlet Control Structures: Outlet control structures shall be designed as simply as possible and shall operate automatically. They will be designed to limit discharges into existing or planned downstream channels or conduits so as not to exceed predetermined safe capacities and not in excess of flows which would have occurred with the land in its natural, undeveloped condition. If necessary, velocity dissipation measures shall be employed to ensure that the discharge does not increase downstream erosion.
 - e. Spillway: Emergency overflow facilities shall be provided unless positive measures are installed to control the inflow so as not to exceed the safe capacity of the basin.
 - f. Appearance: Detention facilities shall where possible, use natural topography and natural vegetation. In lieu thereof, these facilities shall have planted trees and vegetation such as shrubs and permanent ground cover on their borders.
 - g. Fencing. Detention facilities shall be enclosed by a six (6) foot fence where the depth of the water would reach two (2) feet. Each fenced facility shall be effectively and attractively screened with trees and plant material.
3. *Retention Basins*: Basins designed with permanent pools shall conform to the standards for detention basins as specified in Section 9.2-4.2. unless modified or amended as follows:
 - a. Minimum Depths: The minimum normal depth of water before the introduction of excess stormwater shall be four (4) feet.
 - b. Facilities for Emptying: For emergency purposes, cleaning or shoreline maintenance facilities shall be provided or plans prepared for the use of auxiliary equipment to permit emptying and drainage.
 - c. Pollution Abatement: Aeration facilities may be required, dependent on the quality of the influent and detention time.
 - d. Side Slopes: The side slopes shall be of non-erosive material with a slope of 3:1 or flatter. The ledge shall be four (4) to six (6) feet wide, three (3) feet below normal water depth and sloping gently toward the shore to prevent people or objects from sliding into deep water. There shall be a free-board of eighteen (18) inches above the high-water elevation on all retention basins. Alternate designs for side slopes may be considered under special circumstances where good engineering practice is demonstrated.
 - e. Sediment Storage: Adequate area for sediment storage shall be provided in all retention basins.
 4. *Maintenance of Facilities*: The developer shall be responsible for the maintenance of all improvements until such time as eighty percent (80%) of the lots have been improved with buildings and occupancy permits issued or until such time as eighty percent (80%) of the lots in the development have been sold with vegetation to be established to prevent sediment overload. However, the developer shall not transfer these improvements for the purpose of maintenance

until he/she has complied with the above and until he/she has received final approval, final inspection, and a Certificate of Compliance from the City Engineer and/or his (her) appointed consulting representative.

Source: Ordinance No. 1399-2002, §4, 400.4, 2-19-02

All improvements, including landscaping, trash removal, and established vegetation, shall be maintained in perpetuity and cannot be developed for any other use which would limit or cause to limit the use of the improvements

When the property has been subdivided, each property owner shall, within the contents of the deed, be liable for the combined maintenance of the improvements. A special note to this effect shall appear on any final plat of subdivision or any plat of condominium and their declarations.

For a residential subdivision, a Property Owners Association shall be formed in perpetuity for the maintenance of the improvements. Membership shall be mandatory by all property owners. Articles of Agreement of the Property Owners Association must be recommended by the Laurel Planning Commission to the City Council for acceptance and approval. For all other developments, the owner shall be responsible for the maintenance of the improvements.

When problems arise due to inadequate maintenance, the Public Works Director may inspect the improvements and compel the correction of the problem by written notice.

5. *Inspection of Facilities:* The City Engineer and/or his (her) appointed consulting representative shall inspect all drainage facilities while under construction. When facilities are not constructed according to approved plans, the City of Laurel has the explicit authority to compel compliance and have any situations corrected which are not on private property, shall be accessible at all times for inspection by the City Engineer or other responsible public official.

Source: Ordinance No. 1399-2002, §4, 400.5, 2-19-02

6. *Inspection of Facilities:* The Public Works Director shall inspect all drainage facilities while under construction. When facilities are not constructed according to approved plans, the City of Laurel has the explicit authority to compel compliance and have any situations corrected which are not according to the approved plans. All drainage facilities located on private property, whether dedicated to the City of not, shall be accessible at all times for inspection by the Public Works Director or other responsible public official.

Source: Ordinance No. 1366-2000, §4, 4-4-00

Section 9.2-5. Conflict of Provisions.

If any provision of this Ordinance conflicts or is deemed to conflict with a provision of any other Ordinance, then the more strict Ordinance or provision therefore shall prevail in regulating any condition or actions covered by this Ordinance.

Source: Ordinance No. 1366-2000, §5, 4-4-00

Section 9.2-6. Effective Date.

That after the second reading has been approved, this Ordinance shall be in force and effective thirty (30) days from and after its passage.

Source: Ordinance No. 1366-2000, §6, 4-4-00

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