

**CHAPTER 8**  
**EROSION AND SEDIMENT CONTROL,**  
**STORMWATER MANAGEMENT,**  
**FLOOD PLAIN REGULATIONS**

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*Article I*  
*In General*

**§ 8-101. Purpose.**

In order to protect the general health, safety, and welfare of the people of the county, and to protect the natural assets and resources of the county for posterity, this Chapter is enacted to protect the lands and waters from the effects of excessive soil erosion and sedimentation, to prevent siltation of streams and lakes, to prevent clogging of drainage channels, and to prevent damages to the property of adjacent landowners. In addition, it is the purpose of this chapter to provide proper drainage channels, clear of obstruction, for stormwater runoff; to control pollution of streams and drainage channels by urban stormwater runoff; and to prevent encroachment into natural drainage channels by buildings or other land improvements. Proper management of the quality and quantity of stormwater runoff will minimize damage to public and private property, insure a functional drainage system, promote the attainment and maintenance of water quality standards, enhance the local environment associated with the drainage system, maintain as nearly as possible the predevelopment runoff characteristics of the area, and facilitate economic development while mitigating associated flooding and drainage impacts.

**§ 8-102. Authority; intergovernmental agreement.**

This chapter is adopted under the authorities and powers granted to local governments by the General Assembly of South Carolina. Richland County will provide drainage maintenance, plan review, inspections, and the services required by the town's NPDES permit for a Small Municipal Separate Storm Sewer System (SMS4) pursuant to an intergovernmental agreement.

(State law references -- Stormwater Management and Sediment Reduction, S. C. Code 1976, §§ 48-14-10 et seq.; Standards for Stormwater Management and Sediment Reduction, R-72-300 et seq.; Richland County Ord. No. 022-01HR, § I, 4-17-01)

**§ 8-103. Jurisdiction; review by county engineer.**

a. The provisions of this chapter shall apply to all lands within the jurisdiction of the Town of Arcadia Lakes, South Carolina, and this chapter will be administered by Richland County within the corporate limits.

b. As a prerequisite for issuance of building permits or land disturbance permits for new commercial buildings, the town will require review and approval of site plans by the county engineer's office with regard to erosion control measures, floodplain management requirements, and road access regulations.

c. As a prerequisite to issuance of certificates of occupancy for new commercial buildings, the town will require inspection and approval of site improvements related to stormwater management, floodplain management, and road access.

d. The town will submit, or have the developer submit, plans for development and commercial buildings within the town to the county planning department for assessment and collection of applicable subdivision processing fees. The plans will then be forwarded to the county engineer's office for review and approval.

**§ 8-104. Rules of language and interpretation.**

a. The word "shall" is mandatory and not merely discretionary; the word "may" is permissive.

b. The particular shall control the general.

c. Words used in the present tense shall include the future.

d. Words used in the singular shall include the plural, and the plural the singular, unless the extent clearly indicates the contrary.

e. All public officials, bodies and agencies referred to herein are those of the Town of Arcadia Lakes or Richland County, South Carolina, unless otherwise indicated.

§ 8-105. *Definitions.*

The following definitions apply to words and terms used in this chapter. All other words shall have their customary meanings:

*10-Year Flood:* The flood having a ten percent (10%) chance of being equaled or exceeded in any given year.

*25-Year Flood:* The flood having a four percent (4%) chance of being equaled or exceeded in any given year.

*50-Year Flood:* The flood having a two percent (2%) chance of being equaled or exceeded in any given year.

*100-Year Flood/Base Flood:* The flood having a one percent (1%) chance of being equaled or exceeded in any given year.

*500-Year Flood:* The flood having a two-tenths percent (0.2%) chance of being equaled or exceeded in any given year.

*Applicant:* Any person acting on his own behalf as a property owner, or as an agent for a property owner, who makes application for Stormwater Management Plan approval under the provisions of this chapter.

*Area of Special Flood Hazard:* Any land area susceptible to inundation by the base flood (100-year flood) as determined on official Flood Hazard Boundary Maps, Flood Insurance Rate Maps, or other best available data.

*As-built Plan:* The construction plans with any changes made during construction identified and shown on the plan.

*Best Available Data:* Current FEMA information or Flood Insurance Study data, whichever is the most restrictive. The most restrictive information is that which produces the highest base flood elevation (BFE) or the widest floodway.

*Best Management Practice (BMP):* A structural or nonstructural management-based practice used singularly or in combination to reduce nonpoint source inputs to receiving waters in order to achieve water quality and quantity protection goals.

*Construction:* Any building or erection of a structure, or any physical site preparation for the building or erection of a structure.

*County Engineer:* The Richland County Engineer or his authorized representative.

*Detention Structure:* A permanent stormwater management structure whose primary purpose is to temporarily store stormwater runoff and release the stored runoff at controlled rates.

*Developer:* Any person acting on his own behalf as a property owner, or as an agent for a property owner, who makes application for plan approval and a grading permit under the provisions of this chapter.

*Development:* Any of the following actions undertaken by a public or private individual or entity:

(a) any land altering activities associated with the division of a lot, tract or parcel of land into two (2) or more lots, plots, sites, tracts, parcels or other divisions by plan or deed, or

(b) any man-made change, including: clearing, tree removal, grubbing, stripping, dredging, grading, mining, drilling, excavating, paving, transporting and filling of land.

*Drainage:* A general term applied to the removal of surface or subsurface water from a given area either by gravity via natural means or by systems constructed to so remove water, commonly applied herein to surface water.

*Drainage Channel:* Any natural or man-made conveyance for surface water, including open channels, enclosed storm sewers, streams, rivers, lakes, ponds, or marshes.

*Drainage System:* The surface and subsurface system for removal of water from the land, including both the natural elements of streams, marshes, swales, and ponds, whether of an intermittent or continuous nature; and the manmade elements such as improved open channels, culverts, retention facilities, and enclosed storm sewers.

*Easement:* A grant or reservation by the owner of land, for the use of such land by others for a specific purpose or purposes, and which must be included in the conveyance of land.

*Embankment or Fill:* A deposit of soil, rock, or other material placed by man.

*Erosion:* The general process by which soil and rock fragments are detached and moved by the action of wind, water, ice, and gravity, either naturally or induced.

*Erosion and Sediment Control Plan:* A plan which adequately describes necessary land management practices and control measures, including

a timetable or schedule for their installation, which will effectively minimize soil erosion and sedimentation; prepared and approved as provided herein for application to a particular land area.

*FEMA:* The Federal Emergency Management Agency.

*FEMA-designated floodplain:* The 100-year floodplain shown on the most current FEMA Flood Insurance Rate Map or Flood Boundary and Floodway Map. This shall include both the detailed 100-year floodplain, which shows the 100-year flood elevation, and the approximate 100-year floodplain.

*Flood:* A general and temporary condition of partial or complete inundation of normally dry land areas, caused by the overflow of a watercourse or the unusual and rapid accumulation of surface water runoff from any source. For the purpose of this chapter, a flood shall be construed to be any inundation that has a return frequency of one hundred (100) years or less.

*Flood Insurance Rate Map (FIRM):* An official map of Richland County on which FEMA has delineated both the areas of special flood hazards and the risk premium zones applicable to Richland County and the town, with accompanying reports.

*Flood Insurance Study:* A study using detailed hydrologic and hydraulic analyses to model the 1% annual chance flood event, determine base flood elevations, and designate floodways and risk zones (Zones AE, A1-30, AH, AO, VE, and V1-30).

*Flood Prone Area:* The area of land susceptible to being inundated by a flood (see definition of "flood").

*Floodproofing:* Design and construction of nonresidential structures and attendant utility and sanitary facilities that are watertight to at least two (2) feet above the base flood elevation. Walls are substantially impermeable to the passage of water and have structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.

*Grading:* Any displacement of soil by stripping, excavating, filling, stockpiling, or any combination thereof; and shall include the land in its excavated or filled state.

*Grading Permit:* A certificate issued to perform work pursuant to an approved Erosion and Sediment Control Plan prepared under the provisions of this chapter.

*Group Development:* The development of two (2) or more structures designed or intended for separate occupancy or use on a site that is not subdivided into lots, blocks, and streets, and is subject to the county's land development regulations; such as shopping centers, office buildings, industrial sites, manufactured home parks, apartment complexes, and condominium complexes.

*Habitable Floor:* Any floor useable for living purposes, which include working, sleeping, eating, cooking and recreation, or any combination thereof. Floor elevation is to be measured as follows:

- (a) For slab-on-grade type buildings or buildings with basements, the top surface of the slab or basement floor constitutes the lowest floor;
- (b) For footing, foundation wall, or pile type buildings having crawl spaces under the building with no basements, the top surface of the finished flooring above the horizontal joist, beam, or other supporting member constitutes the lowest floor.

*Land:* Any ground, soil, or earth, including marshes, swamps, drainage-ways, and areas not permanently covered by water.

*Land Disturbance:* Any activity involving the clearing, grading, transporting, filling, and any other activity which causes the land to be exposed to the danger of erosion.

*Maintenance:* Any action necessary to preserve stormwater management facilities in proper working condition, in order to serve the intended purposes set forth in this chapter and to prevent structural failure of such facilities. Maintenance shall not include actions taken solely for the purpose of enhancing the aesthetics of stormwater management facilities.

*New Construction:* Structures for which the first placement of permanent construction commenced on or after the effective date of this chapter.

*On-Site Stormwater Management:* The design and construction of a stormwater management facility within and for a single development.

*Person:* Any individual, partnership, co-partnership, firm, company, corporation, association, joint stock company, trust, estate or governmental entity, or their legal representative agents or assigns.

*Primary Drainage Channel:* A drainage channel, stream or creek draining an area of three hundred (300) acres or more.

*Public Nuisance:* The following conditions constitute a public nuisance:

- (a) Any condition that constitutes a breeding ground or harbor for rats, mosquitoes, harmful insects, or other pests.

- (b) Any open place containing a concentration of combustible items such as mattresses, boxes, paper, automobile tires and tubes, garbage, trash, refuse, brush, old clothes, rags, or any other combustible materials or objects of a like nature.
- (c) Any open place containing a collection of garbage, food waste, animal waste, or any other rotten or putrescible matter of any kind.
- (d) Any open place containing furniture, appliances, or metal products of any kind or nature which have jagged edges of metal or glass, or areas of confinement.
- (e) Any condition which blocks, hinders, or obstructs in any way the natural flow of streams, creeks, surface water, ditches, or drains, to the extent that the blockage, hindrance, or obstruction creates standing or stagnant water.

*Regional Stormwater Management:* The design and construction of a stormwater management facility that controls runoff from more than one development.

*Regulatory Floodway:* The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation by more than one (1) foot, as identified on an official Flood Insurance Rate Map or other available information.

*Retention Structure:* A permanent structure whose primary purpose is to permanently store a given volume of stormwater runoff.

*Runoff:* The portion of the precipitation on the land that reaches the drainage system.

*Secondary Drainage Channel:* A drainage channel, stream or creek draining an area less than three hundred (300) acres in size.

*Sedimentation:* The process which operates at or near the surfaces of the ground, to deposit soil, debris and other materials either on other ground surfaces or in water channels.

*Storm Drainage Design Standards:* The manual of design, performance, and review standards for stormwater management, prepared under the direction of the County Engineer.

*Stormwater Design Plan:* The set of drawings and other documents comprising all of the information and specifications for the drainage systems, structures, concepts and techniques used to control stormwater as required by this chapter and the Storm Drainage Design Standards. Also included are the supporting engineering calculations and results of any computer analysis.

*Stormwater Management:* The collection, conveyance, storage, treatment and disposal of stormwater runoff in a manner to minimize channel erosion, flood damage, and/or degradation of water quality and in a manner to enhance and insure the public health, safety, and general welfare.

*Stormwater Management Facilities:* Structures and man-made features designed for the collection, conveyance, storage, treatment and disposal of stormwater runoff into and through the drainage system. Stormwater management facilities include vegetative or structural measures, or both, to control the increased volume and rate of stormwater runoff caused by manmade changes to the land.

*Stormwater Runoff:* The direct response of a watershed to precipitation, including surface and subsurface flows resulting from precipitation.

*Structure:* Anything constructed or erected, the use of which requires a location on the ground, or attached to something having a location on the ground, including, but not limited to, storm sewer infrastructure, manufactured homes, gas or liquid storage tanks, fences, tennis courts, swimming pools, and buildings.

*Substantial Improvement:* Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds fifty percent (50%) of the market value of the structure prior to the improvement.

*Technical Representative:* South Carolina Registered Professional Civil Engineer, Registered Landscape Architect, or Tier B. Land Surveyor responsible for sealing Stormwater Management Plan(s).

*Vegetation:* All plant growth, including trees, shrubs, grasses, and mosses.

*Water Quality:* Those characteristics of stormwater runoff that relate to the physical, chemical, biological, or radiological integrity of water.

*Waters:* For the purpose of identifying NPDES stormwater permit "point discharges", waters means surface waters, within the town's jurisdictional boundaries, as identified on USGS 1:24,000 scale quadrangle sheets.

*Waters of the State:* Refer to the State of South Carolina Department of Health and Environmental Control, Regulation R.61-9.122, Part A, Section 122.2 'Definitions'.

*Watershed:* The drainage area contributing stormwater runoff to a single point.

*Article II*

*Erosion and Sediment Control*

*Division 1. Procedure*

**§ 8-201. *Approved plan and permit required for land disturbance.***

Unless otherwise provided in this article, the surface of land in the county shall not be disturbed or changed for any purposes, whatsoever, but not including those exemptions outlined in § 8-107 (below), except in accordance with a plan for control of erosion and sedimentation approved by the County Engineer. Prior to any grading, construction, or land disturbances of any nature, a grading permit shall be obtained from the Richland County Public Works Department that shall state the period for which the permit is valid.

**§ 8-202. *Exemptions.***

The provisions of this article shall not apply to:

- (a) Agricultural and silvicultural land management and cultural practices, or to the construction of on-farm buildings and structures used in a farming operation.
- (b) Construction or land improvement of a single-family residence or its accessory buildings, that are not part of a subdivision or larger common plan. A single-family residence property owner may make land improvements on his single lot without an approved Erosion and Sediment Control Plan and without obtaining a grading permit provided that such construction or land improvement does not impede the runoff capacity of existing major drainage channels and is not located in an area of special flood hazard.
- (c) Mining and mineral resource extraction operations conducted in accordance with a valid mining permit issued by the Mining and Reclamation Division of the South Carolina Department of Health and Environmental Control.
- (d) Emergency repairs or maintenance of existing structures and facilities which require ground to be broken. The responsible person shall notify the County Engineer in writing within five (5) working days of such emergency repairs and maintenance actions.
- (e) Any agency with the power of eminent domain. Such agencies must apply to the South Carolina Department of Health and Environmental Control for a Stormwater Management Permit.
- (f) Construction and maintenance activities associated with provisions of gas, electrification or communication services and more particularly described in Section 72-302A(6) of the Standards for Stormwater Management and Sediment Reduction administered by the South Carolina Department of Health and Environmental Control pursuant to the South Carolina Stormwater Management and Sediment Reduction Act of 1991.
- (g) Any site, not otherwise exempted, one-half (1/2) acre or less in size, on which the maximum fall per one hundred (100) feet does not exceed six (6) feet anywhere on the site. Slopes may be determined by available contour maps and soil maps; however, actual field measurements may be required and in such cases shall be binding.

**§ 8-203. *Application for plan approval and permit.***

(a) The developer shall apply in writing to the Richland County Public Works Department for a grading permit to disturb or change land in the county. Such application shall be accompanied by five (5) copies of an Erosion and Sediment Control Plan prepared in accordance with this article. The plan shall be certified by the applicant and by a South Carolina Registered Professional Civil Engineer, a Registered Landscape Architect, or a Tier B. Land Surveyor.

(b) A landowner may develop and certify his own Erosion and Sediment Control Plan for a tract of land containing two (2) acres or less, provided: 1) the areas to be disturbed will not allow water to flow in any one direction for over two hundred (200) feet; and 2) the cuts and fills established will not exceed a height or depth

of over five (5) feet; and 3) there will be no concentrated off-site water to be controlled on the site. The plan so developed must meet the objective of § 8-210 of this chapter.

**§ 8-204.           *Application fee.***

The application and grading permit fees are included in the fees assessed under the county's land development regulations and the town's zoning ordinance.

**§ 8-205.           *Approval or disapproval of application.***

(a) If the Erosion and Sediment Control Plan conforms with the requirements of this article, the County Engineer or designee shall issue the grading permit to the applicant, with a copy of the approved plan. However, if the plan does not conform with the requirements of this article, written notification of the permit denial shall be forwarded to the applicant that indicates the reason(s) for plan disapproval.

(b) Review of the Erosion and Sediment Control Plan shall require twenty (20) working days or less from the date of submittal until the time a decision is rendered, either approving or disapproving the plan. However, if the County Engineer or designee determines that the size and scope of the proposed plan requires additional time for adequate review, the review period shall be extended as determined appropriate by the County Engineer or designee, but in no event shall the review period exceed forty-five (45) working days. If at the end of the forty-five (45) working day period a decision has not been reached, the plan shall be deemed approved and a grading permit issued on demand; provided, however, that the applicant may waive this requirement and consent in writing to the extension of that period.

(c) If an Erosion and Sediment Control Plan is disapproved and the grading permit denied, the applicant may elect to correct the indicated deficiencies in conformity with the provisions of this article and resubmit the application and plan. No additional application fee shall be assessed for such resubmission.

**§ 8-206.           *Other authorizations and requirements.***

When any other authorization, bonds, or other sureties are required by applicable laws, regulations, or ordinances pertaining to any part of the proposed work to be done under the Erosion and Sediment Control Plan, the applicant shall, upon request, furnish the County Engineer with satisfactory evidence that such requirements have been met before the commencement of work under an approved plan and grading permit.

**§ 8-207.           *Extension of time.***

If the applicant is unable to complete the work within the time specified in the approved plan and grading permit, he or she may, prior to the expiration of such time, present a written request to the County Engineer for an extension of time, setting forth reasons for the requested extension. The County Engineer shall approve or deny the request for an extension of time subject to such additional erosion and sediment control measures as may be reasonably required.

**§ 8-208.           *Responsibility of applicant.***

(a) The applicant shall be responsible for carrying out the proposed work in accordance with the approved Erosion and Sediment Control Plan and grading permit, and in compliance with the requirements of this article.

(b) The applicant shall be responsible for compliance with all applicable regulations pertaining to the protection of wetlands.

(c) The applicant shall be responsible for notifying the Richland County Engineering Division a maximum of 24 hours after the start of construction.

**§ 8-209. Supplemental regulations.**

All applicable provisions for the Standards for Stormwater Management and Sediment Reduction (Sections 72-301, 302, 305, 307, 308, 312, 313, 314, 315 and 316) administered by the South Carolina Department of Health and Environmental Control pursuant to the South Carolina Stormwater Management and Sediment Reduction Act of 1991 are incorporated by reference herein.

***Division 2. Plan and Action Requirements***

**§ 8-210. Guidelines for preparation of Erosion and Sediment Control Plans.**

Erosion and Sediment Control Plans shall be prepared according to the following guidelines, as applicable, prior to submission to the Richland County Public Works Department. Plans shall include appropriate measures and practices for erosion and sediment control, installed in a timely sequence during the development process, and maintained to insure their proper functions:

- (a) Select land where the drainage pattern, topography, and soils are favorable for the intended use. Tracts of land vary in suitability for different uses. Consider the major characteristics of the land area and the kinds of soil in identifying and evaluating potential erosion and sediment problems, and in selecting appropriate control measures and practices.
- (b) Expose the smallest practical area of land for the least possible time during development.
- (c) When feasible, retain and protect natural vegetation. Save topsoil, where practical, for replacing on graded areas.
- (d) Use temporary plant cover, mulching, and/or structures to control runoff and protect areas subject to erosion during construction.
- (e) Provide for handling the increased runoff caused by changed soil and surface conditions. Emphasis should be placed on conservation of existing on-site soil. Effective means include the use of diversion ditches, grassed or surfaced waterways and outlets, enlarged and protected drainage channels, grade control structures, and effective use of street gutters and storm sewers.
- (f) Use sediment basins or other forms of silt traps, where practical, to remove heavy sediment loads from runoff waters leaving the disturbed area.
- (g) Install permanent vegetative cover and long-term erosion protection measures or structures as soon as practical in the development process.

**§ 8-211. Contents of plan and application.**

The Erosion and Sediment Control Plan and application for grading permit shall include, but not be limited to, the following data as applicable:

- (a) A vicinity map sufficient to locate the site and to show the relationship of the site to its general surroundings at a scale of not less than one thousand (1,000) feet to one (1) inch.
- (b) A site plan, drawn to a scale of not less than two hundred (200) feet to one (1) inch, and supporting specifications and schedules showing:
  - (1) The boundary lines of the site on which the work is to be performed, including the approximate acreage of the site.
  - (2) Existing contours with intervals of not more than five (5) feet.



**Article III**  
**Stormwater Management**  
**Division 1. Procedure**

**§ 8-301. *Approved Stormwater Management Plan required for construction and other development.***

(a) Unless otherwise provided in this article, any construction or other development affecting the quantity and/or quality of stormwater runoff, or that is located in an area of special flood hazard, shall be in accordance with a Stormwater Management Plan approved by the County Engineer. Approval of the Stormwater Management Plan shall be obtained prior to the issuance of a building permit.

(b) No building permit shall be issued until the required drainage improvements are installed or an acceptable bond, as determined by the County Engineer, is provided in lieu of completion of the improvements. Drainage improvements shall in all cases be completed prior to occupancy.

**§ 8-302. *Coverage under other permits.***

(a) The County may review industrial storm water pollution prevention plan(s), as required under a facility's National Pollutant Discharge Elimination System (NPDES) storm water discharge permit, when outfall monitoring indicates a suspected violation.

(b) The County may review reclamation plan(s), as required under a mining and mineral resource extraction operation's operating permit, when outfall monitoring indicates a suspected violation.

(c) The County may review certificate(s) of environmental compatibility, as required by the Public Service Commission, when outfall monitoring indicates a suspected violation at a utility.

**§ 8-303. *Exemptions.***

The provisions of this article shall not apply to:

- (a) Agricultural and silvicultural land management and cultural practices, or construction of on-farm nonresidential buildings and structures used in a farming operation, provided that such structures do not require a building permit and do not impede the flood-carrying capacity of a regulatory floodway.
- (b) Construction or land improvements of a single-family residence or its accessory building(s) not part of a subdivision or larger common plan or sale. A single-family residence property owner may make land improvements on this single lot without an approved Stormwater Management Plan, provided that such construction or land improvement does not impede the runoff capability of the existing major drainage channels and is not located in an area of special flood hazard.
- (c) Industrial operations conducted in accordance with valid NPDES individual storm water pollution prevention permit(s) issued by the Industrial, Agricultural and Storm Water Permitting Division of the South Carolina Department of Health and Environmental Control, provided that such operations are subject to review in accordance with /s 8-19(a) and shall not impede the flood-carrying capacity of a regulatory floodway.
- (d) Mining and mineral resource extraction operations conducted in accordance with a valid mining permit issued by the Mining and Reclamation Division of the South Carolina Department of Health and Environmental Control, provided that such operations are subject to review in accordance with /s 8-19(b) and shall not impede the flood-carrying capacity of a regulatory floodway.
- (e) Any agency with power of eminent domain. Such agencies must apply to the Department of Health and Environmental Control for a Stormwater Management Permit.
- (f) New developments that include twenty thousand (20,000) square feet or less of impervious area in total, provided that such operations shall not impede the flood-carrying capacity of a regulatory floodway.

- (g) New construction to existing development that includes ten thousand (10,000) square feet or less of new impervious area, provided that such operations shall not impede the flood-carrying capacity of a regulatory floodway.
- (h) Construction and maintenance activities associated with provisions of gas, electrification or communication services and more particularly described in Section 72-302A(6) of the Standards for Stormwater Management and Sediment Reduction administered by the South Carolina Department of Health and Environmental Control pursuant to the South Carolina Stormwater Management and Sediment Reduction Act of 1991.

**§ 8-304. Contents of plan.**

The Stormwater Management Plan shall include, but not be limited to, the following data as applicable, and submitted in digital format specified by the county. The County Engineer may require additional calculations be made, formula used, or data supplied as he deems necessary:

- (a) A vicinity map sufficient to locate the site and drainage area, showing the relationship of the site to its general surroundings at a scale of not less than one (1) inch = one thousand (1,000) feet.
- (b) A site plan for the site(s) where drainage improvements are proposed, drawn to a scale of not less than two hundred (200) feet to one (1) inch utilizing the South Carolina State Plane Coordinates as specified in Title 27, Chapter 2, of the South Carolina Code of Laws, as amended. The site plan must include supporting specifications and computations showing:
  - (1) The boundary lines of the site(s) on which the work is to be performed, including the acreage of the site and drainage area, and boundary of any special flood hazard and/or regulatory floodway and base flood elevations. If there are non-FEMA-designated floodplains, they must be shown. A separate floodplain submittal may be required and shall be reviewed by the county's floodplain coordinator.
  - (2) Existing and proposed contours, at intervals of not more than five (5) feet based on mean sea level. Contours shall extend one hundred (100) feet outside the site boundary lines, unless waived by the County Engineer.
  - (3) Proposed physical improvements on the site, including present development and future utilization. Construction and design details shall be included for all structural controls. All landscaping relating to stormwater management shall also be shown on the site plan.
  - (4) All drainage and flood protection provisions and improvements to be utilized in connection with, or as part of, the proposed work. Such provisions shall include a time schedule and sequence of operations indicating the anticipated starting and completion dates of each development sequence.
  - (5) Designation of all easements needed for inspection and maintenance of the stormwater management facilities, including easements needed for the maintenance of the public drainage system. As a minimum, easements shall have the following characteristics:
    - a. Provide adequate access to all stormwater management facilities for inspection and maintenance;
    - b. Provide adequate access to all parts of the public drainage system and structures;
    - c. Provide drainage easements of acceptable widths, in accordance with the County's Storm Drainage Design Standards;
    - d. Provide sufficient land area for maintenance equipment and personnel to adequately and efficiently maintain the system. A minimum of ten (10) feet beyond the bank along both sides of all open drainage ways, ditches, channels, etc., is required. This distance shall be measured from the top of bank or toe of dam, whichever is applicable. Easements are also required for stormwater management facilities, in accordance with specifications provided in the Storm Drainage Design Standards.
    - e. Restriction on easements shall include: 1) prohibiting all fences without gates; and 2) prohibiting structures that could interfere with access to the easement area(s) for inspections and maintenance.
- (6) A general description of the predominant on-site soil types.



(d) If a Stormwater Management Plan is disapproved, the applicant may elect to correct the indicated deficiencies in conformity with the provisions of this article and resubmit the plan.

**§ 8-307.           *Responsibility of applicant.***

Approval of plans by the County Engineer in no way relieves the applicant's technical representative from his responsibility for the correctness of the plans or the accuracy of his calculations, nor does it relieve the owner or the applicant from their obligation to comply with any applicable laws.

***Division 2. Requirements and Standards***

**§ 8-308.           *Methods of calculating stream flow and runoff.***

(a) Formulas and values as prescribed in the Storm Drainage Design Standards shall be used for calculating all stream flow and runoff. Copies of the standards may be obtained through the County Engineer's office.

(b) The following rainfall frequencies shall be used in the calculations for stormwater runoff and stormwater management facility design, depending upon the size of the watershed:

<u>Size-Acres</u>	<u>Frequency-Years</u>
300 -	+ 50 year
40 - 299	25 year
0-39	10 year

The two (2) year, twenty-four (24) hour rainfall shall also be used as prescribed in the Storm Drainage Design Standards.

(c) Calculations used in the design of proposed stormwater management facilities shall reflect the anticipated future development of the entire watershed.

(d) Appropriate inlet control and outlet control curves shall be used to determine headwater depths, where applicable.

**§ 8-309.           *Primary drainage channel requirements.***

All primary drainage channels located within or immediately adjacent to any improvement, development or subdivision shall be protected or improved by the applicant as follows:

(a) Responsibility of applicant:

- (1) The applicant shall be responsible for carrying out the proposed work in accordance with the approved Stormwater Management Plan, and in compliance with the requirements of this article.
- (2) The applicant shall plan and carry out his developments in a manner that will not interfere with or restrict the flow of water, nor increase the 100-year flood elevation by more than one (1) foot. The developer shall be responsible for any improvements to such channels, as needed to handle increased runoff or other changes resulting from his development, in accordance with the provisions of this article.

(b) All land adjacent to a primary drainage channel and not protected by levees, dikes or fill shall be dedicated for the purpose of providing drainage right-of-way as follows:

- (1) In commercial or residential subdivisions, drainage easements of satisfactory width to provide working room for construction and maintenance equipment shall be deeded to the county for all drainage improvements, including stormwater management facilities, and shall be separate and apart from adjoining lots.
- (2) In group developments or planned unit developments, the property owner(s) or Home Owners' Association shall be responsible for maintenance of drainage channels and easements. The final plat

approved for recordation shall indicate the available public easements for drainage channels. The county shall have the right to encroach onto these public easements or permit others to encroach for any purpose deemed appropriate by the County Engineer. In no way does this right of encroachment lessen the obligation of the property owner(s) or the responsibility of the Home Owners' Association for maintenance of the drainage channels and easements.

- (c) The existing channel lying within or contiguous to a subdivision or parcel of land proposed for development or redevelopment may be: 1) cleaned to provide for free flow of water; and 2) straightened, widened, and improved to prevent overflow resulting from the 50-year frequency rainfall beyond the limits of the dedicated drainage easement provided for in subsection (b) above; provided:
  - (1) The Stormwater Management Plan contains details of the proposed channel modifications and includes either:
    - a. A mitigation plan for water quality impacts, including best management practices to be implemented as part of the channel modification and overall project; or
    - b. An engineering analysis demonstrating no water quality impacts resulting from the proposed modifications.
  - (2) The Stormwater Management Plan must be approved in accordance with this article prior to commencing any channel modifications.
- (d) In areas of special flood hazard, final grading of all lots and building sites for new construction or substantial improvement shall provide for elevation on fill, pilings, or earth filled curtain walls of the lowest habitable floor to at least two (2) feet above the 100-year flood elevation. Where fill is used to meet this requirement, the area two (2) feet above the 100-year flood elevation shall extend at least ten (10) feet from each side of the building pad. Certain types of non-residential structures are permitted within the floodplain if properly "floodproofed" in compliance with the Zoning Ordinance and building codes.
- (e) Whenever channel improvements are carried out in accordance with subsection (c) above, sodding, backsloping, cribbing, and other bank protection shall be designed and constructed to control erosion for the anticipated conditions and flow resulting from a 50-year rainfall.
- (f) Primary drainage channels located within street easements shall be placed in enclosed storm sewers, except under the following conditions:
  - (1) Where a paved street surface at least two (2) lanes wide is provided on both sides of an improved channel so as to provide access to abutting properties.
  - (2) For lots with a double-street frontage, an open drainage channel is permitted between the rear lot line and the paved street, provided that access from the street to the lot is prohibited both at the time of construction and in the future.
  - (3) When a condition outlined in either (1) or (2) above is present, adequate width shall be dedicated as right-of-way to provide for the maintenance of an improved drainage channel and its bank.
- (g) All levees protecting residential structures or non-residential structures which are not floodproofed shall be designed, constructed and maintained to provide protection against the 500-year flood plus three (3) feet of freeboard. Flood elevations shall be as shown on the latest Flood Insurance Rate Maps or as determined by appropriate hydrologic methods. Any levee constructed or improved under this subsection shall also comply with the other provisions of this chapter, including, but not limited to, subsection (h) below.
- (h) Notwithstanding any other provision of this chapter, no levees, dikes, fill materials, structures or obstructions that will impede the free flow of water during times of flood will be permitted in the regulatory floodway, unless:
  - (1) such proposed impediment is or would be a part of or used by any public or private school that was constructed and operated before January 1, 2001 on property subsequently classified as a regulatory floodway, or

- (2) such proposed impediment is or would be a part of or used by a publicly owned wastewater treatment facility that was constructed and operated before January 1, 2001 on property subsequently classified as a regulatory floodway; or
  - (3) such proposed impediment is a minor recreational or playground facility or area, such as, but not limited to, a boat ramp, floating dock, picnic area, soccer goal, or swing set; or
  - (4) such impediment was approved by the County Engineer under this subsection (h), or under any predecessor provision, before January 1, 2001; provided, however, that any specified activities permitted above must comply with all applicable federal, state, and local requirements, including, but not limited to, 44 C.F.R. 60.3(d)(3), as amended. Nothing in this subsection (h) shall limit provisions in this chapter or elsewhere authorizing or requiring the maintenance and repair of levees, dikes, dams, and similar structures; provided, however, that this sentence shall not be construed as authorizing or requiring the repair or maintenance of any such structure to the extent that such repair or maintenance would result in a structure that would be higher or wider than it was before the need arose for such repair or maintenance.
- (i) National Flood Insurance Program: All applicable regulations of the National Flood Insurance Program are incorporated by reference herein.

**§ 8-310.            *Secondary drainage channel and surface requirements.***

All secondary drainage channels which are within or immediately adjacent to an improvement, development, or subdivision shall be protected and improved by the applicant as follows:

- (a) Drainage easements of satisfactory width to provide working room for construction and maintenance equipment shall be dedicated to the county for all drainage improvements in subdivision developments, including stormwater management facilities. Drainage improvement maintenance for group developments, commercial buildings, or planned unit developments shall be the responsibility of the property owner(s) or Home Owners' Association.
- (b) Secondary drainage channels having a primary function of: 1) collecting surface water from adjacent properties, or 2) intercepting and diverting side hill drainage, shall be improved open channels.
- (c) Secondary drainage channels having a primary function of: 1) transporting surface water through a block or development; or 2) collecting surface water from cross channels, shall be improved as follows:
  - (1) Secondary drainage channels having drainage basins forty (40) acres or larger shall be improved with either a closed storm sewer or improved open channel designed to carry the runoff resulting from a 25-year frequency rainfall. A natural stream may be approved by the County Engineer for environmental or aesthetic purposes, provided that it has the required carrying capacity and that flood protection requirements are met.
  - (2) Secondary drainage channels having less than forty (40) acres shall be improved with closed storm sewers designed to carry the runoff resulting from a 10-year frequency rainfall. Variation from this requirement may be approved by the County Engineer for environmental or aesthetic purposes, provided that it has the required carrying capacity and flood protection requirements are met.
  - (3) All improvements to drainage channels shall be carried out such that waters of the state protected by the Federal Clean Water Act are not degraded.
- (d) In areas of special flood hazard, final grading of all lots and building sites for new construction or substantial improvement of residential structures shall provide for elevation on fill, pilings, or earth filled curtain walls of the lowest habitable floor to at least two (2) feet above the 100-year flood elevation. Where fill is added to meet this requirement, the area two (2) feet above the 100-year flood elevation shall extend at least ten (10) feet from each side of the building pad. Certain types of structures are permitted within the floodplain if properly "floodproofed" in conformity with the County's Zoning Ordinance and building code.

- (e) Secondary drainage channels located within street easements shall be placed in enclosed storm sewers, except under the following conditions:
  - (1) Where a paved street surface at least two (2) lanes wide is provided on both sides of an improved channel so as to provide access to abutting properties.
  - (2) For lots with a double-street frontage, an open drainage channel is permitted between the rear lot line and the paved street, provided that access from the street to the lot is prohibited both at the time of construction and in the future.
  - (3) When a condition outlined in either (1) or (2) above is present, adequate width shall be dedicated as right-of-way to provide for the maintenance of an improved drainage channel and its bank.
- (f) Off-site discharges from closed storm sewers or improved open channels will only be permitted at natural streams or man-made drainage channels acceptable to the County Engineer, unless a drainage easement is obtained from the adjoining landowner. Adequate provisions shall be made to reduce discharge velocities such that the receiving channel is not degraded. When off-site drainage channels are not adequate to accept the additional runoff resulting from development, the developer shall install on-site facilities for controlled release of stormwater runoff. These on-site drainage facilities shall be designed to limit the runoff rate to predevelopment levels during the design storm and the two-year storm.
- (g) Developments:
  - (1) Single-family residential, duplex, or manufactured home development: Site grading shall be carried out in such a manner that surface water from each dwelling lot will flow directly to a storm sewer, improved channel, sodded swale, or paved street without running more than two hundred (200) feet.
  - (2) Commercial, industrial, multi-family, and institutional development: Roofs, paved areas, yards, courts, courtyards and other impervious surfaces shall be drained into a storm sewer system, with the exception that such drainage may flow directly into a street, curb and gutter system or improved channel when of small area and approved by the County Engineer. Construction of buildings over storm drainage improvements is not permitted.
- (h) Surface water collected on streets shall be diverted to enclosed storm sewers or drainage channels at satisfactory intervals to prevent overflow of the street and its curbs and gutters, where provided, during a 10-year frequency rainfall.

**§ 8-311. Minimum water quality requirements.**

(a) The minimum quality control requirements are provided in the Storm Drainage Design Standards, prepared under the direction of the County Engineer. These requirements may be waived by the County Engineer if: 1) it can be shown, by engineering calculations acceptable to the County Engineer, that stormwater management facilities are not needed to control developed peak discharge rates and meet water quality requirements; and 2) installing such facilities would not be in the best interest of local citizens or the county.

(b) The County Engineer may determine that additional stormwater management facilities, beyond those required under this article, are necessary for on-site stormwater management. Additional facilities may be needed to enhance or provide for the general health, safety and welfare; to correct unacceptable or undesirable existing conditions; or to provide protection for future development in a more desirable fashion. If such a determination is made, the County Engineer may:

- (1) Require that the owner/applicant grant any necessary easements to provide access to or drainage from the stormwater management facility; and
- (2) Develop an agreement with the owner/applicant for the over-design of the stormwater management facility to provide additional water quality benefits beyond that required by this article; and
- (3) Participate financially in construction of the stormwater management facility, to the extent that such facility exceeds the on-site stormwater management requirements, as determined by the County

Engineer. The county may pay the additional expenses incurred in providing the additional storage capacity or water quality benefits, including land costs and increased design and construction costs.

**§ 8-312.            *Design criteria for improvements.***

(a) *Open channels:* Open channels shall be provided with an improved section that will carry runoff from the appropriate design storm and preclude the creation of backwater inundating any areas outside of dedicated drainage easements. The channel shall be designed to minimize negative water quality impacts and protect against erosion in accordance with standards adopted by the County Engineer.

(b) *Closed storm sewers and culverts:* Closed storm sewers and culverts shall be constructed of precast or prefabricated pipe or box culvert or built in place, of closed box design, in conformity with county specifications. They shall be sized to carry the runoff from the appropriate design storm and to preclude the creation of headwater inundating any areas outside of dedicated drainage easements.

(c) *Bridges:* Bridges shall be designed to comply with Section 8-26(g) and (h) above and the design shall be in accordance with standards adopted by the County Engineer. Construction shall be in accordance with South Carolina Department of Transportation specifications.

(d) *Levees:* Levees shall be designed, constructed, and maintained as follows:

- (1) Design and construction shall be in accordance with U.S. Army Corps of Engineers' Manual EM 1110-2-1913 (31 March 1978) *Design and Construction of Levees*. The design and construction of drainage systems within levees shall be in accordance with the U.S. Army Corps of Engineers' Manual EM 1110-2-1413 (15 Jan 1987) *Hydrologic Analysis of Interior Areas*. A South Carolina Registered Professional Engineer shall certify that he has been involved in the design, construction, and inspection phases and shall certify that the construction meets requirements of the Corps of Engineers.
- (2) Owners of levees will perform the necessary and required maintenance and provide appropriate records to the County Engineer. These records will include:
  - a. Signed agreements of perpetual operation and maintenance between the constructor and/or owner and the county;
  - b. As-built construction plans sealed by a South Carolina Registered Professional Engineer;
  - c. Levee maintenance program in accordance with the Levee Maintenance Standards and Procedures of the county (See Division 4 of this Article); and
  - d. Periodic maintenance reports as required by the County Engineer.

(e) *Stormwater management facilities:*

- (1) Stormwater management facilities may include both structural and non-structural elements incorporating quantity and/or quality control.
- (2) A variety of different types of stormwater management facilities exist and can be used to satisfy the minimum quantity and/or quality control requirements. All proposed stormwater control measures shall be in accordance with the Storm Drainage Design Standards.
- (3) Stormwater management facilities shall restrict the peak post-development runoff rate to the peak pre-development rate for the design storm. The design storm shall be ten (10), twenty-five (25), or fifty (50) years, depending on the size of the drainage basin. Overflow structures and emergency spillways shall be designed to accommodate the 100-year rainfall.
- (4) Wet ponds (retention structures with a permanent pool) shall be utilized for drainage areas of 25 acres or more, in accordance with the County's Storm Drainage Design Standards. Wet ponds may be required for smaller drainage areas, as determined by the County Engineer on a case-by-case basis.

- (5) Where wet (retention) and dry (detention) facilities are used, designs which consolidate them into a limited number of large structures are preferred over designs utilizing a large number of smaller structures. Additional state and/or federal permits may be required for larger stormwater management facilities impacting waters of the state protected by the Federal Clean Water Act.
- (6) The County Engineer may reject a Stormwater Management Plan if it incorporates structures and facilities that do not meet the requirements of this article, or utilize numerous small structures where other alternatives are physically possible.
- (7) The drainage system and all stormwater management structures within the county (including public and private portions) will be designed to the same engineering and technical criteria and standards. Owners of stormwater management facilities will perform the required maintenance and provide appropriate records to the County Engineer. These records will include:
  - a. As-built construction plans certified by a South Carolina Registered Professional Civil Engineer, Registered Landscape Architect, or Tier B. Land Surveyor;
  - b. Periodic maintenance reports as required by the County Engineer.

**§ 8-313.           *Maintenance of stormwater management facilities.***

- (a) All stormwater management facilities shall be maintained by the owner(s) in such a manner as to maintain and enhance the general health, safety and welfare; to reduce and minimize damage to public and private property; to reduce and minimize the impact of such facilities on land and stream channel erosion; to promote the attainment and maintenance of water quality standards; and to maintain, as nearly as possible, the pre-development runoff characteristics of the area. All maintenance of privately owned stormwater management facilities shall be at the sole cost and expense of the owner(s) of such facilities.
- (b) It shall be unlawful for the owner or occupant of any property upon which a stormwater management facility is located, to fail to maintain the facility in such a manner that the facility creates a danger to the general health, safety and welfare. Should the owner fail to so maintain the stormwater management facility, this failure shall constitute a public nuisance.
- (c) If the county assists private owners with the design of stormwater management facilities, this does not imply any maintenance responsibilities by the county. The maintenance of all such facilities shall be the sole responsibility of the property owner(s).

**§ 8-314.           *Illicit discharges and improper disposal.***

- (a) *Illicit connections.*
  - (1) It shall be unlawful to use any stream or watercourse to carry off water from any kitchen sink, bathtub or privy, or to carry off any fluid of an offensive or dangerous nature. No water or refuse from any industrial, commercial or institutional process, including water used for heating or cooling, shall be discharged in any stream or watercourse by any person until such person has obtained the appropriate local, state and federal permits.
  - (2) It shall be unlawful, either willfully or negligently, to injure, deface, mutilate, destroy, tamper or interfere with any county-owned property or any property used in the county's publicly owned storm water management system.
  - (3) Building permits shall be required before the construction of any connection to the county's publicly owned storm water management system.
- (b) *Improper disposal.* It shall be unlawful for any person to discharge non-storm water to any storm water conveyance with the exception of the following:
  - (1) water line flushing,

- (2) diverted stream flows,
- (3) rising ground water,
- (4) uncontaminated ground water infiltration (as defined at 40 CFR 35.2005 [20]) to separate storm sewers,
- (5) uncontaminated pumped ground water discharges from potable water sources,
- (6) foundation drains,
- (7) air conditioning condensation,
- (8) irrigation water,
- (9) springs,
- (10) water from crawl space pumps,
- (11) footing drains,
- (12) lawn watering,
- (13) car washing at one's residence, not for hire,
- (14) flows from riparian habitats and wetlands,
- (15) dechlorinated swimming pool discharges,
- (16) street wash water, and
- (17) discharges from fire fighting.

(c) *Litter and refuse control.* It shall be unlawful for any person to dump, throw, drop, leave, or in any way deposit any garbage, ashes, rubbish, paper, trash, litter, refuse, building materials, glass bottles, glass or cans: 1) on any property belonging to another; or 2) on or along any street, road, highway, curb, sidewalk or public right-of-way, except as required by the authorized and franchised garbage collector for that district. No person shall throw or deposit any refuse in any stream or other body of water within the boundaries of the county.

(d) *Organic waste.*

- (1) It shall be the duty of the property owner to keep grass clippings, leaves, tree and shrub clippings, stumps, organic materials or any other yard trash out of gutters, inlets, catch basins, and side ditches.
- (2) It shall be unlawful to place grass clippings, leaves, tree and shrub clippings, stumps, organic materials or any other yard trash in any street, storm drain, stream, storm water conveyance, or any other location where concentrated flows could wash such wastes into the storm sewer system.
- (3) Privies, piggens and stables of all kinds shall be placed far enough away from any stream, ditch, drain, or other storm water conveyance that human or animal waste(s) will not run into them.

**§ 8-315.        *Spill response.***

(a) The Director of Emergency Services or designee, or an authorized fire official, shall have the authority to summarily abate, control and contain hazardous materials that are emitted into the environment and endanger the health or safety of the general public or the environment. The Director of Emergency Services or designee, or an authorized fire official, shall have the authority to enter public or private property with or without the owner's consent, to respond to such hazardous materials emergencies. The Director of Emergency Services or designee, or authorized fire official, shall determine the type, amount and quantity of equipment and personnel required to adequately abate, control and contain all hazardous materials emitted into the environment.

(b) The property owner and/or person responsible for the hazardous materials spill or release shall be held financially liable for the response, control, containment, equipment and materials costs, including legal fees, incurred by the county and supporting agencies. The property owner and/or person responsible for the hazardous material spill may provide personnel to assist abatement, removal and remedial measures, provided such personnel have been adequately equipped and trained pursuant to the requirements of local, state and

federal laws. The county shall not be liable for the use of outside personnel. Assistance shall consist of any or all of the following:

- (1) Informing Emergency Services Department personnel of all matters pertaining to the incident.
- (2) Supplying emergency response plan information for the site.
- (3) Supplying emergency response equipment, personnel and materials. Charges for hazardous materials emergency response shall be based upon the actual costs of response, control, containment, equipment and materials, including legal fees. All fees collected shall be turned in to the County Treasurer and credited to the county's general fund.

(c) In fire incidents involving hazardous materials or exposure to hazardous materials, no fee will be assessed for resources normally associated with firefighting operations. Fees shall be assessed for those activities and resources associated with abatement, control and containment of the hazardous materials involvement or exposure.

**§ 8-316. Supplemental regulations.**

(a) All applicable provisions of the standards for Stormwater Management and Sediment Reduction (Section 72-301, 302, 305, 307, 308, 312, 313, 314, 315 and 316) administered by the South Carolina Department of Health and Environmental Control pursuant to the South Carolina Stormwater Management and Sediment Reduction Act of 1991 are incorporated by reference herein.

(b) All applicable provisions of the NPDES and Land Application Permits Regulation (Section 61-9.122 Part A 122.2, 122.3, 122.4 and Part B 122.26) administered by the South Carolina Department of Health and Environmental Control pursuant to the South Carolina Pollution Control Act of 1976 are incorporated by reference herein.

***Division 3. Administration and Inspection***

**§ 8-317. Inspection during construction.**

The County Engineer shall periodically inspect the work completed under the approved Stormwater Management Plan. Upon completion of such work, he/she shall make a final inspection, and if the work has been carried out in accordance with the plan, he/she shall issue a letter of satisfactory completion upon receipt of the as-built drawings.

**§ 8-318. Right-of-entry.**

(a) The County Engineer shall have right-of-entry on or upon the property of any person subject to this article and any permit/document issued hereunder. The County Engineer shall be provided ready access to all parts of the premises for the purposes of inspection, monitoring, sampling, inventory, examination and copying of records, and the performance of any other duties necessary to determine compliance with this article.

(b) Where a person has security measures in force requiring proper identification and clearance before entry onto the premises, the person shall make necessary arrangements with security guards so that, upon presentation of suitable identification, the County Engineer will be permitted to enter without delay for the purposes of performing specific responsibilities.

(c) The County Engineer shall have the right to set up on the person's property such devices as are necessary to conduct sampling and/or metering of the person's operations as they relate to stormwater management.

(d) Any temporary or permanent obstruction to safe and easy access to the areas to be inspected and/or monitored shall be removed promptly by the person at the written or verbal request of the County Engineer. The costs of clearing such access shall be borne by the person.

(e) In cases where an imminent threat to the health or safety of the general public or the environment is suspected, the County Engineer or the Director of Emergency Services (or designee) shall inspect existing stormwater management facilities to determine if immediate action is necessary. Such inspection shall be made with or without the consent of the owner, manager, or signatory official. If such consent is refused, the County Engineer may seek issuance of an administrative search warrant.

#### *Division 4. Levees*

##### **§ 8-319.        *Purpose and scope.***

This regulation establishes standards and procedures for levee maintenance through the town. The term "levee" as used herein also includes seepage and stability berms.

##### **§ 8-320.        *In general.***

Adequate levee maintenance is essential and cannot be overemphasized. Failure to properly maintain levees may render the levees inoperative during periods when their protection is needed. For safety in times of high water or floods, levee maintenance will be thorough and continuous. This requires a balanced maintenance program based on defined standards and procedures.

##### **§ 8-321.        *Maintenance standards and procedures.***

The levees will be maintained as necessary to insure serviceability against floods at all times:

- (a) *Sod growth:* Maintenance of a sturdy sod growth on levee embankments is highly important as sod is one of the most effective means of protecting the levee against erosion from rain, current and wavewash. Periodic mowing with tractor-operated equipment is essential to maintaining a good sod growth, and should be done at such intervals as necessary to keep down weeds and other noxious growth and to prevent the grass height from exceeding twelve (12) inches. The grass should be mowed to a height of two (2) inches or more. The number of mowings required each season will depend on local conditions. The last mowing of the season will be accomplished under conditions that allow the grass to obtain a height of approximately eight (8) inches to ten (10) inches entering the winter season. Mowing will be performed to a distance of at least five (5) feet beyond the toe of the levee or berm. Burning grass and weeds is not permitted in the levee maintenance program, except during appropriate seasons when it is not detrimental to sod growth. During the growing season, spraying with herbicides on an as-needed basis is permissible and desirable for weed and brush control on levees and berms. Reseeding and fertilizing shall be completed frequently enough to sustain sod growth on levee embankments for erosion control.
- (b) *Earth embankments:* Levee embankments will be maintained to not less than the design grade and section by replacing any material lost from the crown or slopes. Ruts, washes, slides and subsidence should be promptly repaired and the entire embankment maintained sufficiently smooth for power mowing. Levee crowns should be graded as necessary to drain freely and prevent impoundment of rainwater. All brush, trees, and other undesirable growth will be removed from the levee embankment.
- (c) *Animal burrows:* Levees and adjacent landward areas will be maintained free of all types of animal burrows. Animal burrows, when found, will be backfilled with compacted material and sodded. To prevent recurrence, efforts will be made to exterminate the burrowing animals.
- (d) *Prevention of encroachment:* Care will be taken to assure that levees are not encroached upon. Buildings, structures, and storage of materials or equipment will not be permitted on the levee. Refuse dumps are an

item of frequent concern and will not be permitted. Following each high water, any debris deposited on the riverside slope of the levee will be removed promptly.

- (e) *Roads and ramps*: Access roads to and on the levees, including ramps, will be bladed as necessary to keep the roadway shaped properly and free of ruts, pockets, and washes. Ramp embankments should be maintained to their design section and design grade. Maintenance will be performed as necessary to correct any encroachment into the levee crown where roads cross levees. Road surfacing material will be replaced as necessary to maintain the road surface in good condition.
- (f) *Miscellaneous levee facilities and appurtenances*: Levee facilities and appurtenances which are constructed on, over, or through the levee will be maintained in a good state of repair and/or inspected at least annually. Facilities and appurtenances that operate only during high water will be checked carefully and repaired as necessary, immediately prior to high water season. Relief wells should be checked during periods of high water. Wells that do not flow for an extended period of time may have to be tested by pumping to determine the extent of deterioration. Critically deteriorated wells will be rehabilitated by cleaning, surging and pumping. Check valves will be inspected to insure that they open freely and that the gaskets are in good condition. The most common of the facilities and appurtenances referred to herein are:
  - (1) Drainage structures through the levee.
  - (2) Toe drainage systems.
  - (3) Relief wells.
  - (4) Levee slope protection and protection on dike ends.
  - (5) Gates, cattle guards and fences.
  - (6) Siphons and pipe crossings.

**§ 8-322.        *Inspection.***

Frequent inspections are essential to a good levee maintenance program. In addition to the formal inspections required by the County Engineer, inspections will be made prior to the beginning of the flood season, during and immediately following each high water period, and at such intermediate times as necessary to insure satisfactory care of the levee.

***Division 5. Appeals and Enforcement***

**§ 8-323.        *Appeals.***

Any person aggrieved by any decision of the County Engineer or the Council under this chapter may appeal to a court of competent jurisdiction, which shall hear the same de novo. Such an appeal shall be filed within thirty (30) days after the County Engineer's decision.

**§ 8-324.        *Enforcement.***

(a) The County Engineer shall be entitled to inspect all stormwater management facilities subject to this chapter at all reasonable times in order to determine compliance or non-compliance with the terms and provisions hereof.

(b) When the County Engineer finds that work done under any grading permit issued under the provisions of Article II fails to conform to the approved Erosion and Sediment Control Plan, or that the work has not been done, or finds that work done under any approved Stormwater Management Plan fails to conform to the approved plan, or that the work has not been done, the County Engineer may, as deemed necessary, by written order direct conformity to said Plan(s). Actions may include: 1) issuing a written order to comply, to suspend

work, or to revoke the permit issued; or 2) seeking redress through legal action; and/or 3) withholding the release of permanent electric power to the site.

(c) When the County Engineer determines that an owner has failed to maintain a stormwater management facility, he/she shall provide written notice to the owner or the person in possession, charge or control of such property stating that: 1) in the judgment of the County Engineer the conditions existing upon the property constitute a public nuisance; and 2) setting forth action to be taken to eliminate the objectionable conditions; and 3) requesting that such action be undertaken within the number of days specified in the notice. The notice shall further state that unless the objectionable conditions are voluntarily removed or remedied within the specified time, the County Engineer shall subject the offender to penalty in an amount he deems appropriate and in accordance with § 8-325 of this article.

(d) The County Attorney is hereby directed to take all legal actions necessary to correct any public nuisances, including actions that are necessary to remove from the property such objectionable conditions constituting the public nuisance.

(e) Nothing contained in this chapter shall impair the right or ability of the County Attorney to exercise any and all other remedies available, at law or in equity, including without limitation, the pursuit of injunctive relief, under emergency circumstances where there exists the danger of bodily injury or death.

(f) The governing body of the county or its appointed agent may obtain injunctive relief to enjoin violations of the provisions of this chapter, and any person damaged as a result of such violations may, upon a proper showing of such damages, obtain payment therefore by a civil action.

(g) This chapter may be enforced by any other remedy of law or equity that the county is authorized to pursue, to include the authorities and powers conferred to local governments by the General Assembly of South Carolina. The penalties and other remedies provided in this chapter are cumulative and not exclusive, and may be independently and separately pursued against the same person for the activity constituting a violation of this chapter. The enforcement of any remedy provided herein shall not prevent the enforcement of any other remedy or remedies in other provisions of this Code or other laws and regulations.

**§ 8-325. Penalties.**

Any person who violates the provisions of this chapter shall be deemed guilty of a misdemeanor and, upon conviction, shall be fined not more than five hundred (\$500.00) dollars or imprisoned for not more than thirty (30) days, or both. Each day's continuing violation shall constitute a separate and distinct offense, unless otherwise specified.

**§ 8-326. Relationship with other laws, regulations, and ordinances.**

Whenever the provisions of this chapter impose more restrictive standards than are required in or under any other law, regulation or ordinance, the requirements herein contained shall prevail. Whenever the provisions of any other law, regulation, or ordinance require more restrictive standards than are required herein, the requirements of such law, regulation, or ordinance shall prevail.

*Article IV*

*Flood Plain Regulations*

**§ 8-401. *Flood plain area; designation.***

Within the flood plain area having special flood hazard and identified as zone A on the "flood hazard boundary" map, hereinafter referred to as Zone A, all laws and ordinances concerning land use and control and other measures designed to reduce flood losses, now in force or hereafter enacted, shall take precedence over any conflicting laws, ordinances or codes.

**§ 8-402. *Building permits required.***

- a. Building permits shall be required for all proposed construction or other improvement within Zone A.
- b. Building permit applications for major repairs within zone A will be reviewed by the municipal codes official to determine that the proposed repair (1) uses construction materials and utility equipment that are resistant to flood damage and (2) uses construction methods and practices that will minimize flood damage.
- c. Building permit applications for new construction or substantial improvements within zone A will be reviewed by municipal codes official to assure that the proposed construction including prefabricated and mobile homes (1) is protected against flood damage, (2) is designed or modified and anchored to prevent flotation, collapse or lateral movement of the structure, (3) uses construction materials and utility equipment that are resistant to flood damage, and (4) uses construction methods and practices that will minimize flood damage.

**§ 8-403. *Review of subdivision proposals.***

Proposed new developments within zone A will be reviewed by the municipal codes official to assure that (1) all such proposals are consistent with the need to minimize flood damage, (2) all public utilities and facilities, such as sewer, gas, electrical, and water systems are located, elevated, and constructed to minimize or eliminate flood damage, and (3) adequate drainage is provided so as to reduce exposure to flood hazards.

**§ 8-404. *Approval of utility systems required.***

New or replacement water supply systems and/or sanitary sewage systems within zone A must be approved by municipal codes official and must be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the system into flood waters, and on-site waste disposal systems must be located so as to avoid impairment of them or contamination from them during flooding.

*Article V*  
*Flood Damage Prevention*

**§ 8-501.        *Statutory authorization.***

The following flood damage regulations are adopted pursuant to powers delegated to municipalities in Act 283 of 1975, S. C. Code 1976, § 5-7-30, to promote the public health, safety, and general welfare of the citizens of the town.

**§ 8-502.        *Findings of fact.***

a. The flood hazard areas of the Town of Arcadia Lakes are subject to period inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

b. These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to the lands which are inadequately elevated, flood-proofed, or otherwise unprotected from flood damages.

**§ 8-503.        *Statement of purpose.***

It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

1. restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
2. require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
3. control the alteration of natural flood plains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;
4. control filling, grading, dredging and other development which may increase erosion or flood damage, and;
5. prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazard to other lands.

**§ 8-504.        *Objectives.***

The objectives of this ordinance are:

1. to protect human life and health;
2. to minimize expenditure of public money for costly flood control projects;
3. to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
4. to minimize prolonged business interruptions;
5. to minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;
6. to help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blight areas, and;
7. to insure that potential home buyers are notified that property is in a flood area.

§ 8-505. *Definitions.*

Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

"Addition (to an existing building)" means any walled and roofed expansion to the perimeter of a building in which the addition is connected by a common load-bearing wall other than a fire wall. Any walled and roofed addition which is connected by a fire wall or is separated by independent perimeter load-bearing walls is new construction.

"Appeal" means a request for a review of the municipal codes official's interpretation of any provision of this ordinance or a request for a variance.

"Area of shallow flooding" means a designated AO or VO Zone on a community's Flood Insurance Rate Map (FIRM) with base flood depths from one (1) to three (3) feet where a clearly defined channel does not exist, where the path of flooding is unpredictable and indeterminate, and where velocity flow may be evident.

"Area of special flood hazard" is the land in the flood plain within a community subject to a one percent or greater chance of flooding in any given year.

"Base flood" means the flood having a one percent chance of being equaled or exceeded in any given year.

"Basement" means that portion of a building having its floor subgrade (below ground level) on all sides.

"Breakaway wall" means a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces without causing damage to the elevated portion of the building or the supporting foundation system.

"Building" means any structure built for support, shelter, or enclosure for any occupancy or storage.

"Development" means any man-made change to improved or unimproved real estate, including, but not limited to, buildings, or other structures, mining, dredging, filling, grading, paving, excavating, drilling operations, or permanent storage of materials.

"Elevated building" means a non-basement building built to have the lowest floor elevated above the ground level by means of fill, solid foundation perimeter walls, pilings, columns (post and piers), shear walls, or breakaway walls.

"Flood" or "flooding" means a general and temporary condition of partial or complete inundation of normally dry land areas from:

1. the overflow of inland or tidal waters;
2. the unusual and rapid accumulation or runoff of surface waters from any source.

"Flood Hazard Boundary Map (FHBM)" means an official map of a community, issued by the Federal Emergency Management Agency, where the boundaries of the areas of special flood hazard have been defined as Zone A.

"Flood Insurance Rate Map (FIRM)" means an official map of a community, on which the Federal Emergency Management Agency has delineated both the areas of special flood hazard and the risk premium zones applicable to the community.

"Flood Insurance Study" is the official report provided by the Federal Emergency Management Agency. The report contains flood profiles, as well as the Flood Boundary Floodway Map and the water surface elevation of the base flood.

"Floodway" means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one (1) foot.

"Floor" means the top surface of an enclosed area in a building (including basement), i. e., top of slab in concrete slab construction or top of wood flooring in wood frame construction. The term does not include the floor of a garage used solely for parking vehicles.

"Functionally dependent facility" means a facility which cannot be used for its intended purpose unless it is located or carried out in close proximity to water, such as a docking or port facility necessary for the loading and unloading of cargo or passengers, shipbuilding, ship repair, or seafood processing facilities. The term does not include long-term storage, manufacture, sales, or service facilities.

"Highest adjacent grade" means the highest natural elevation of the ground surface, prior to construction, next to the proposed walls of a structure.

"Mean Seal Level" means the average height of the sea for all stages of the tide. It is used as a reference for establishing various elevations within the flood plain. For purposes of this ordinance, the term is synonymous with National Geodetic Vertical Datum (NGVD).

"Manufactured home" means a structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connect to the required utilities. The term also includes park trailers, travel trailers, and similar transportable structures placed on a site for one hundred eighty (180) days or longer and intended to be improved property.

"National Geodetic Vertical Datum (NGVD) as corrected in 1929 is a vertical control used as a reference for establishing varying elevations within the flood plain.

"New construction" means structures for which the "start of construction" commenced on or after the effective date of this ordinance.

"Sand Dunes" means naturally occurring accumulations of sand in ridges or mounds landward of the beach.

"Start of construction" includes substantial improvement, and means the date the building permit was issued, provided the actual start of construction, repair, reconstruction, or improvement was within one hundred eighty (180) days of the permit date. The actual start means the first placement of permanent construction of a structure (including a manufactured home) on a site, such as the pouring of slabs or footings, installation or piles, construction of columns, or any work beyond the stage of excavation or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include the excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds no occupied as dwelling units or not part of the main structure.

"Structure" means a walled and roofed building that is principally above ground, a manufactured home, a gas or liquid storage tank, or other man-made facilities or infrastructures.

"Substantial improvement" means any combination of repairs, reconstruction, alteration, or improvements to a structure, taking place during the life of a structure, in which the cumulative cost equals or exceeds fifty percent of the market value of the structure. The market value of the structure should be (1) the appraised value of the structure prior to the start of the initial repair or improvement, or (2) in the case of damage, the value of the structure prior to the damage occurring. For the purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structure part of the building commences, whether or not that alteration affects the external dimensions of the structure. The term does not, however, include any project for improvement of a structure required to comply with existing health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions.

"Variance" is a grant of relief from the requirements of this ordinance which permits construction in a manner otherwise prohibited by this ordinance where specific enforcement would result in unnecessary hardship.

**§ 8-506. *Lands to which the ordinance applies.***

This ordinance shall apply to all areas of special flood hazard within the jurisdiction of the Town of Arcadia Lakes.

**§ 8-507. *Basis for establishing the areas of special flood hazard.***

The areas of special flood hazard identified by the Federal Emergency Management Agency in its Flood Hazard Boundary Map (FHBM), #450171 0001 C, dated November 19, 1980, and any revisions thereto are adopted by reference and declared to be a part of this chapter; or the areas of special flood hazard identified by the Federal Insurance Administration through a scientific engineering report entitled "The Flood Insurance Study for the Town of Arcadia Lakes," dated May, 1980, with accompanying Flood Insurance Rate Maps and Flood Boundary and Floodway Maps and any revision thereto are adopted by reference and declared to be a part of this ordinance.

**§ 8-508. *Establishment of development permit.***

A Development Permit shall be required in conformance with the provisions of this ordinance prior to the commencement of any development activities.

**§ 8-509. *Compliance.***

No structure or land shall hereafter be located, extended, converted or structurally altered without full compliance with the terms of this ordinance and other applicable regulations.

**§ 8-510. *Abrogation and greater restrictions.***

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

**§ 8-511. *Interpretation.***

In the interpretation and application of this ordinance all provisions shall be: (1) considered as minimum requirements; (2) liberally construed in favor of the governing body, and; (3) deemed neither to limit nor repeal any other powers granted under state statutes.

**§ 8-512. *Warning and disclaimer of liability.***

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the Town of Arcadia Lakes or by any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

**§ 8-513. *Penalties for violation.***

Violation of the provisions of this ordinance or failure to comply with any of its requirements, including violation of conditions and safeguards established in connection with grants of variance or special exceptions, shall constitute a misdemeanor. Any person who violates this ordinance or fails to comply with any of its

requirements shall, upon conviction thereof, be fined not more than \$500.00 or imprisoned for not more than thirty (30) days, or both, and in addition, shall pay all costs and expenses involved in the case. Each day such violation continues shall be considered a separate offense. Nothing herein contained shall prevent the Town of Arcadia Lakes from taking such other lawful action as is necessary to prevent or remedy any violation.

**§ 8-514. Designation of Municipal Codes Official.**

The building codes officer designated pursuant to § 4-103 is hereby appointed Municipal Codes Official with power to administer and implement the provisions of this ordinance.

**§ 8-515. Permit procedures.**

Application for a Development Permit shall be made to the municipal codes official on forms furnished at the office of the clerk-treasurer prior to any development activities, and may include, but not be limited to, the following plans in duplicate drawn to scale showing the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing. Specifically, the following information is required:

1. Application Stage.
  - a. Elevation in relation to mean sea level of the proposed lowest floor (including basement) of all structures;
  - b. Elevation in relation to mean sea level to which any non-residential structure will be flood-proofed;
  - c. Certificate from a registered professional engineer or architect that the non-residential flood-proofed structure will meet the floodproofing criteria in § 8-519 (2).
  - d. Description of the extent to which any watercourse will be altered or relocated as a result of proposed development, and:

2. Construction Stage.

Provide a floor elevation or flood-proofing certification after the lowest floor is completed, or in instances where the structure is subject to the regulations applicable to Coastal High Hazard Areas, after placement of the horizontal structure members of the lowest floor. Upon placement of the lowest floor, or flood-proofing by whatever construction means, or upon placement of the horizontal structure members of the lowest floor, whichever is applicable, it shall be the duty of the permit holder to submit to the Municipal Codes Official a certification of the elevation of the lowest floor, flood-proofed elevation, or the elevation of the lowest portion of the horizontal structural members of the lowest floor, whichever is applicable, as built, in relation to mean sea level. Said certification shall be prepared by or under the direct supervision of a registered land surveyor or professional engineer and certified by same. When floodproofing is utilized for a particular building, said certification shall be prepared by or under the direct supervision of a professional engineer or architect and certified by same. Any work undertaken prior to submission of the certification shall be at the permit holder's risk. The Municipal Codes Official shall review the floor elevation survey data submitted. Deficiencies detected by such review shall be corrected by the permit holder immediately and prior to further progressive work being permitted to proceed. Failure to submit the surveyor failure to make said corrections required hereby, shall be cause to issue a stop-work order for the project.

**§ 8-516. Duties and responsibilities of the Municipal Codes Official.**

Duties of the Municipal Codes Official shall include, but not be limited to:

1. Review all development permits to assure that the permit requirements of this ordinance have been satisfied;
2. Advise permittee that additional federal or state permits may be required, and if specific federal or state

permit requirements are known, require that copies of such permits be provided and maintained on file with the development permit.

3. Notify adjacent communities and the South Carolina Water Resources Commission prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.
4. Assure that maintenance is provided within the altered or relocated portion of said watercourses so that the flood-carrying capacity is not diminished.
5. Verify and record the actual elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, in accordance with § 8-515(2).
6. Verify and record the actual elevation (in relation to mean sea level) to which the new or substantially improved structures have been flood-proofed, in accordance with § 8-515(2).
7. When flood-proofing is utilized for a particular structure, the Municipal Codes Official shall obtain certification from a registered professional engineer or architect, in accordance with § 8-519(2).
8. Where interpretation is needed as to the exact location of boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions) the Municipal Codes Official shall make the necessary interpretation. The person contesting the location of the boundary shall be give a reasonable opportunity to appeal the interpretation as provided in this article.
9. When base flood elevation data or flood way data have not been provided in accordance with § 8-506, then the .Municipal Codes Official shall obtain, review and reasonably utilize any base flood elevation and flood way data available from a federal, state or other source, in order to administer the provisions of this Article.
10. All records pertaining to the provisions of this ordinance shall be maintained in the office of the Municipal Codes Official for a minimum period of five (5) years from the date the record was initiated and shall be open for public inspection.

**§ 8-517. Variance procedures.**

1. The Board of Zoning Appeals as established in § 5-231 of this code shall hear and decide appeals and requests for variances from the requirements of this ordinance.
2. The Board of Zoning Appeals shall hear and decide appeals when it is alleged there is an error in any requirement, decision, or determination made by the Municipal Codes Official in the enforcement or administration of this ordinance.
3. Any person aggrieved by the decision of the Board of Zoning Appeals may appeal such decision to the Circuit Court of the County, as provided in § 5-236 of this code.
4. Variances may be issued for the reconstruction, rehabilitation or restoration of structures listed on the National Register of Historic Places of the State Inventory of Historic Places without regard to procedures set forth in the remainder of this section, except for § 8-517 (8) (a) and (d), and provided the proposed reconstruction, rehabilitation, or restoration will not result in the structure losing its historical designation.

5. In passing upon such applications, the Board of Zoning Appeals shall consider all technical evaluations, all relevant factors, all standards specified in other sections of this ordinance, and:
  - a. the danger that materials may be swept onto other lands to the injury of others;
  - b. the danger to life and property due to flooding and erosion damage;
  - c. the susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner;
  - d. the importance of the services provided by the proposed facility to the community;
  - e. the necessity of the facility to a waterfront location, in the case of a functionally dependent facility;
  - f. the availability of alternative locations, not subject to flooding or erosion damage, for the proposed use;
  - g. the compatibility of the proposed use with existing and anticipated development;
  - h. the relationship of the proposed use to the comprehensive plan and floodplain management program for that area;
  - i. the safety of access to the property in times of flood for ordinary and emergency vehicles;
  - j. the expected heights, velocity, duration, rate of rise and sediment transport of the flood waters and the effects of wave action, if applicable, expected at the site, and;
  - k. the costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical, and water systems, and streets and bridges.
6. Upon consideration of the factors listed above, and the purposes of this ordinance, the Board of Zoning Appeals may attach such conditions to the granting of variances as it deems necessary to further the purposes of this ordinance.
7. Variances shall not be issued within any designated floodway if any increase in flood levels during the base flood discharge would result.
8. Conditions for Variances:
  - a. Variances shall only be issued upon determination that the variance is the minimum necessary, considering the flood hazard, to afford relief; and in the instance of a historical building, a determination that the variance is the minimum necessary so as not to destroy the historic character and design of the building;
  - b. Variances shall only be issued upon (i) a showing of good and sufficient cause, (ii) a determination that failure to grant the variance would result in exceptional hardship, and; (iii) a determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisance, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.
  - c. Any applicant to whom a variance is granted shall be given written notice specifying the difference between the base flood elevation and the elevation to which the structure is to be built and stating that the cost of flood insurance will be commensurate with the increased risk resulting from the reduced lowest flood elevation.
  - d. The Municipal Codes Official shall maintain the records of all appeal actions and report of any variance to the Federal Emergency Management Agency upon request.

**§ 8-518. General standards for flood hazard reduction.**

In all areas of special flood hazard the following provisions are required:

1. New construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure.
2. Manufactured homes shall be anchored to prevent flotation, collapse or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. This standard shall be in addition to and consistent with applicable state requirements for resisting wind forces.
3. New construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage;
4. New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;
5. Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
6. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
7. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters;
8. On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding; and;
9. Any alteration, repair, reconstruction or improvements to a structure which is in compliance with the provisions for this ordinance, shall meet the requirements of "new construction" as contained in this ordinance.

**§ 8-519. Specific standards for flood hazard reduction.**

In all areas of special flood hazard where base flood elevation data have been provided, as set forth in § 8-507 or § 8-516(9), the following provisions are required:

1. Residential construction. New construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated no lower than one (1) foot above the base flood elevation. Should solid foundation perimeter walls be used to elevate a structure, openings sufficient to facilitate the unimpeded movements of flood waters shall be provided in accordance with standards of § 8-519(3).
2. Non-residential construction. New construction or substantial improvement of any commercial, industrial, or non-residential structure shall have the lowest floor, including basement, elevated no lower than one (1) foot above the level of the base flood elevation. Structures located in all A-zones may be flood-proofed in lieu of being elevated provided that all areas of the structure below the required elevation are watertight with walls substantially impermeable to the passage of water, and use structural components having the capability of resisting hydrostatic and hydrodynamic loads and the effect of buoyancy. A registered professional engineer or architect shall certify that the standards of this subsection are satisfied. Such certification shall be provided to the officials as set forth in § 8-515(3).
3. Elevated buildings. New construction or substantial improvements of elevated buildings that include fully enclosed areas formed by foundation and other exterior walls below the base flood elevation shall be designed to preclude finished living space and designed to allow for the entry and exit of flood waters to automatically equalize hydrostatic flood forces on exterior walls.

- a. Designs for complying with this requirement must either be certified by a professional engineer or architect or meet the following minimum criteria:
    - (i) Provide a minimum of two (2) openings having a total net area of not less than one (1) square inch for every square foot of enclosed area subject to flooding.
    - (ii) The bottom of all openings shall be no higher than one (1) foot above grade; and,
    - (iii) Openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of flood waters in both directions.
  - b. Electrical, plumbing, and other utility connections are prohibited below the base flood elevation.
  - c. Access to the enclosed area shall be the minimum necessary to allow for parking of vehicles (garage door) or limited storage of maintenance equipment used in connection with the premises (standard exterior door) or entry to the living area (stairway or elevator); and
  - d. The interior portion of such enclosed area shall not be partitioned or finished into separate rooms.
4. Floodways. Located within areas of special flood hazard established in § 8-507, are areas designated as floodways. Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and has erosion potential, the following provisions shall apply:
- a. Prohibit encroachments, including fill, new construction, substantial improvements and other developments unless certification (with supporting technical data) by a registered professional engineer is provided demonstrating that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge.
  - b. If § 8-519(4) (a) is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this article.
  - c. Prohibit the placement of manufactured homes (mobile homes).

**§ 8-520.        *Standards for streams without established base flood elevations or floodways.***

Located within the areas of special flood hazard established in § 5-507, where small streams exist but where no base flood data have been provided or where no floodways have been provided, the following provisions apply:

1. No encroachments, including fill material or structures shall be located within a distance of the stream bank equal to five (5) times the width of the stream at the top of bank or twenty (20) feet each side from top of bank, whichever is greater, unless certification by a registered professional engineer is provided demonstrating that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
2. New construction or substantial improvements of structures shall be elevated or flood-proofed to elevations established in accordance with § 8-516(9).

**§ 8-521.        *Standards for subdivision proposals.***

1. All subdivision proposals shall be consistent with the need to minimize flood damage;
2. All subdivision proposals shall have public utilities and facilities such as sewer, gas, electrical and water systems located and constructed to minimize flood damage;
3. All subdivision proposals shall have adequate drainage provided to reduce exposure to flood hazards; and,
4. Base flood elevation data shall be provided for subdivision proposals and other proposed development which is greater than the less of fifty (50) lots or five (5) acres.

§ 8-522. *Standards for areas of shallow flooding (AO Zones).*

Located within the areas of special flood hazard established in § 8-507, are areas designated as shallow flooding areas. These areas have special flood hazards associated with base flood depths of one (1) to three (3) feet (1'- 3') where a clearly defined channel does not exist and where the path of flooding is unpredictable and indeterminate; therefore, the following provisions apply:

1. All new construction and substantial improvements of residential structures shall have the lowest floor, including basement, elevated to the depth number specified on the FIRM, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated, at least two (2) feet above the highest adjacent grade.
2. All new construction and substantial improvements of non-residential structures shall:
  - a. have the lowest floor, including basement, elevated to the depth number specified on the FIRM, in feet, above the highest adjacent grade. If no depth number is specified, the lowest floor, including basement, shall be elevated, at least two (2) feet above the highest adjacent grade, or:
  - b. together with attendant utility and sanitary facilities be completely flood-proofed to or above that level so that any space below that level is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.

(Ordinance of 3/5/1987)