

ORDINANCE NO. 00-09

AN ORDINANCE TO BE KNOWN AS THE COMPREHENSIVE STORM DRAINAGE ORDINANCE FOR THE CITY OF WAYCROSS, GEORGIA; TO AMEND THE CODE OF THE CITY OF WAYCROSS, GEORGIA; TO SET AN EFFECTIVE DATE; TO REPEAL CONFLICTING ORDINANCES; TO PROVIDE FOR RENUMBERING OR RELETTERING; TO PROVIDE FOR SEVERABILITY; AND FOR OTHER PURPOSES

BE IT ORDAINED by the Commission of the City of Waycross, Georgia and it is hereby ordained by the authority of the same as follows:

That the Code of the City of Waycross, Georgia, is hereby amended by adding a new chapter to be numbered Chapter 9A which reads as follows:

“SECTION 1.1 INTRODUCTION AND STATEMENT OF POLICY

Most types of urban development involve the construction of buildings and paved surfaces which lead to an increase in stormwater runoff. In order to minimize the impact from stormwater runoff caused by development, the City of Waycross will adopt its first storm drainage ordinance in 2000. The ordinance will require that new developments provide stormwater detention systems to control stormwater so that the rate of stormwater runoff is not increased. In other words, post development stormwater runoff rates should not exceed pre-development stormwater runoff rates.

In order to provide an orderly and progressive improvement to the City storm drainage problems, the City is adopting a policy for controlling the stormwater runoff caused by development.

Therefore, with the adoption of this ordinance, it becomes the policy of the City of Waycross to:

1. Require storm detention facilities for most types of new development, and to
2. Require that the peak release rate of stormwater runoff from all developments, where stormwater detention is required, not exceed the peak release rate from the development site in its natural undeveloped state.

SECTION 1.2 PURPOSES

The purposes of this ordinance are as follows:

1. To recognize that the City of Waycross is continually undergoing topographical changes due to development and redevelopment activities consisting of new construction or additions to existing facilities. These changes result in additional stormwater runoff due to land area being paved, roofed, or otherwise made impervious.

2. To recognize that development or redevelopment which causes stormwater runoff not only compounds existing drainage problems but also creates new problems, and that the resolution of these problems will require the joint efforts of the City, developers, and property owners.
3. To recognize the necessity of establishing guidelines, design requirements, rules and regulations, etc., for the resolution of these problems by formulating and adopting a storm drainage ordinance.
4. To assure the City's continued eligibility under the National Flood Insurance Program, by instituting effective drainage controls.
5. To provide developers and property owners with general information as to minimum stormwater runoff requirements that will be necessary for new developments or additions to existing facilities.
6. To provide design engineers with general basic design formulas and data for their use and as guidelines in designing storm drainage systems.
7. To reduce soil erosion and sedimentation in creeks, streams, ditches, etc., by incorporating effective soil erosion and sedimentation plans into the storm drainage plans.

SECTION 1.3 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.

- As-built drawings: Amended plans specifying the location, dimensions, elevations, capacities and operational capabilities of storm drainage facilities and structures as they have been constructed.
- City: The City of Waycross, Georgia.
- City Engineer: The City Engineer of the City of Waycross or his authorized representative.
- Construction: Any alteration of land or real property for the purpose of achieving its development or changed use, including, without limitation, any preparation for, building of, or erection of a structure, or any excavation, grading, paving or similar activities.

Detention facility:	A facility which provides for storage of stormwater runoff and the controlled release of this runoff during and after a flood or storm event.
Developer:	Any person who acts in the person's own behalf or as the agent of an owner of property and engages in alteration of land, buildings or vegetation in preparation for or in conjunction with construction activity. The developer may also be referred to as the owner-developer.
Development:	Any action in preparation for or in conjunction with construction activities which results in alteration of land, buildings or vegetation, including, but not limited to, the construction of buildings or other structures, mining, dredging, filling, grading, paving, excavating or drilling operations.
Development site:	The area of improved or unimproved real estate to be altered or changed by the act of development.
Drainage:	The general term applied to the removal of surface and subsurface water from a given area, either by gravity or by pumping. The term drainage is commonly applied herein to surface water.
Drainage plan:	A plan prepared using appropriate and commonly accepted engineering standards which specifies the means for alteration or development of a drainage system.
Drainage study:	A study, prepared by a professional engineer registered to practice in the State of Georgia, which includes drainage plans, computations and other information required by Section 1.5 of this ordinance.
Drainage system:	The surface and subsurface system for the removal of water from land, including both the natural elements of streams, marshes, swales and ponds, whether of an intermittent or continuous nature, and the man-made elements including but not limited to culverts, ditches, channels, storm detention facilities and the storm drainage system.
Flood:	A general and temporary condition of partial or complete inundation of normally dry land areas from the overflow of inland waters and/or the unusual and rapid accumulation or runoff of surface waters from any source.
Live detention:	That quantity of water capable of being effectively contained by a designated facility for stormwater storage for a specified period of time.

Maintenance of detention facility:	Preserving the enclosed walls, pipes, impounding embankments and other elements of a detention facility in good condition, ensuring structural soundness, functional adequacy and freedom from sediment and correcting any unforeseen problems from erosion or other natural or man-made actions.
Owner or Owner-developer:	The person or persons in whom is vested the fee ownership, dominion, title of property; the proprietor. This term may also include a tenant, if chargeable under the lease for maintenance of the property and any agent of the owner or tenant including, without limitation, a developer. Person shall include and mean, without limitation, individual, firm, corporation, partnership or other entity.
Runoff:	The portion of precipitation on the land which reaches the drainage system.
Runoff coefficient:	The ratio of runoff to rainfall.
Stream:	Natural, running water flowing continuously or intermittently in a channel on or below the surface of the ground. A stream may also be referred to as a creek.
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 buildings, paved surfaces such as parking lots, drives and walkways, tennis courts, fences, and swimming pools.

SECTION 1.4 DRAINAGE REQUIREMENTS

Unless exempt from the requirements of this ordinance, all new developments or additions to existing developments shall provide a combination of on-site storage (detention facility) and controlled release of stormwater runoff. On-site storage shall be provided for the stormwater runoff generated by the 2-year, 5-year, 10-year, 25-year, 50-year and 100-year 24-hour storm events.

The peak release rate of stormwater runoff from all developments where detention is required shall not exceed the peak stormwater runoff rate from the development site in its natural undeveloped state for all storm intensities listed above. The runoff coefficient for a development site in its natural undeveloped state shall correspond to the runoff coefficient for woodlands land use for the natural slope and soil present on the property, but in no case shall it exceed 0.30 without the concurrence of the City Engineer.

The developer shall submit a drainage study, prepared and certified by a professional engineer, registered to practice in the State of Georgia, and shall include plans, computations, and other information as required in Section 1.5, Design standards.

Developments having exemptions or special conditions are as follows:

1. Exemptions:

Single-family residential lots presently undeveloped. These lots, if used for one single-family residential structure, will be exempt from complying with the requirements of this ordinance.

2. Any development or addition to an existing development that has a total site size of 2 acres or less or does not increase the total runoff from the post-developed site by more than 10 percent of the total runoff from the pre-developed site for the 24-year, 24-hour frequency storm event.

3. Developments having special conditions shall comply with the following:

Floodplains. Any development consisting of, but not limited to, additions to existing structures, new separate structures, paving, filling, excavating, grading, etc. in floodplains, are to be discouraged. Should an owner or developer, however, consider development of such sites he will be required, in addition to this ordinance, to comply with the National Flood Insurance Program regulations. The City has on file in the offices of the City Engineer a Flood Hazard Boundary Map, latest revision furnished by the Department of Housing and Urban Development, Federal Insurance Administration. This map shows the sections of creeks within the City of Waycross which are included in the National Flood Insurance Program.

The drainage study shall show what effects the developments will have both upstream and downstream. Should the study reveal that the developments will increase the flow or flood stages downstream or increase the flood stages upstream, no developments will be approved unless equivalent flow and storage capabilities are replaced and maintained by the owner or developer on his property.

The lowest finished floor level, shall be set at least two (2) feet above the 100-year flood level. Parking lots, carports, garages, and driveways shall have the lowest elevation set a minimum of one (1) foot above the 100-year flood level. Floodproofing of residential and non-residential structures is acceptable under certain conditions, as may be determined by the City Engineer.

SECTION 1.5 DESIGN STANDARDS

The following requirements and accompanying charts and graphs shall be used for the design and review of storm drain pipes, culverts, and detention facilities.

1. Runoff. The peak rates of runoff shall be computed by the Rational Method, SCS or other acceptable methods.
2. Rainfall intensity. Rainfall intensity-duration curves, for the City of Savannah as found in Georgia Manual on Drainage Design for Highways, Georgia Department of Transportation, (Manual) latest edition, or locally developed intensity curves derived using standardly acceptable engineering methods, shall be used for determining rainfall intensity for the various return frequencies. Said manual is incorporated herein by reference.
3. Pipe selection. Manning's formula shall be used to select size of pipe and slopes (grade).
4. Detention facility design. The reservoir routing method of design shall be used for determining the required storage volume and design of the outlet control structure of the detention facility. The peak stormwater runoff release rate for the proposed development shall not exceed the peak stormwater runoff rate from the development site in its natural undeveloped state for all storm intensities from the 2-year storm up to and including the 100-year storm. The runoff coefficient for a development site in its natural undeveloped stage shall correspond to the run-off coefficient for woodlands land use for the natural slope and soil present on the property, but in no case shall it exceed 0.30. Detention facility outlet control structures and other drainage improvements shall be located and designed to prevent erosion damage to adjacent property owners.
5. Connection to existing storm drains. The drainage study shall show what effect development will have on existing drainage facilities where connection is being proposed. If discharge is not made to an existing facility then study shall show what the effect will be on the first drainage facility (pipe, culvert, etc.) downstream from the point of discharge.
6. Plans. Drainage study shall include a site plan showing the drainage facilities and the following general information:
 - a. Scale: Site plan, one inch equals twenty (20) feet. Other scales may be acceptable if pre-approved by the City Engineer.
 - b. Contours: One-foot increment.
 - c. Elevation datum: Mean sea level.

- d. Elevations: Pipes, spillways, head walls, pavement. etc.
 - e. Drainage basins: Plans shall show both pre-development and post-development drainage basins.
 - f. Details: Construction details of manholes, catch basins, head walls, grate size, spillways, dam construction, outlet control structures, etc.
 - g. Fencing: Permanent fencing at least six (6) feet in height shall be required around all detention facilities having a maximum water depth of more than three and one-half (3 ½) feet or a bank with slope ratio greater than one and one-half (1 ½) horizontal to one (1) vertical. Fencing shall be designed, installed and maintained to allow the free flow of runoff into the detention facility. Fencing shall include a gate of sufficient size to permit entrance of equipment necessary to allow periodic maintenance. Fencing may be waived by the City Engineer in non-residential developments where the detention facility is five hundred (500) feet or more from a residence and in residential developments where detention is provided in natural areas such as stream channels and where the fencing would affect stream flow or cause other environmental damage.
 - h. Floodplain: 100-year flood elevation and contour, floor elevations, basement or crawl space elevations, driveway and parking lot elevations, garage or carport elevations, etc.
 - i. Engineer's seal: All plans shall have the seal and signature of the design engineer. The design engineer shall be a professional engineer registered to practice in the State of Georgia.
 - j. Soil erosion control: Plans shall comply with the Georgia Soil Erosion and Sedimentation Control Act of 1975 as amended and Georgia Rule 391-3-7 Erosion and Sedimentation Control, and acts and regulations amending or supplementing such act and such regulations.
7. Certification. The drainage study shall be prefaced with a signed certification by the design engineer. A sample of the Storm Drainage Certificate is included as Chart 1.
8. Computations. The drainage study shall include runoff computations, curves, volume computations of detention facilities for at least five (5) storms (including the 2-year storm, the 100-year storm and any three (3) storms in-between), and floodplain cross sections and computations where filling and excavation is proposed in a floodplain.

9. Final certification at completion. At completion of project the owner shall have the design engineer inspect and furnish as-built drawings of the detention facilities and a certification that facilities were constructed in accordance with the plans.
10. Changes. No changes will be permitted in drainage structures, grading, elevations, etc., unless submitted by the design engineer and approved by the City Engineer.
11. Runoff coefficients. The runoff coefficient, C value, shall be obtained from Chart 2 or other standardly acceptable sources.
12. Time of concentration. Time of concentration shall be determined from Chart 3 or by other standardly acceptable methods.

SECTION 1.6 MAINTENANCE OF PRIVATE STORM DRAINAGE FACILITIES

The owner-developer shall be responsible for the maintenance of storm drainage and detention facilities during the grading, construction and following final approval of the completed project. This maintenance obligation shall be binding on future owners, successors and assigns of the property. The City Engineer or his authorized representative may inspect such facilities at any reasonable time and notify the owner-developer of any maintenance requirements or deficiencies to be corrected.

SECTION 1.7 ADMINISTRATION, INSPECTION AND ENFORCEMENT

The City Engineer is designated as the official responsible for the administration of this ordinance for the City of Waycross. The City Engineer or his authorized representative shall be responsible for reviewing and approving the development plans, on-site inspections of construction and maintenance, and initiation of enforcement actions when violations occur. The following procedures and/or requirements shall be followed.

1. Application.
 - a. Submittal: The owner-developer or design engineer shall submit three (3) copies of plans and two (2) sets of computations to the City Engineer.
 - b. Application fees: A fee shall be charged for review of each application, according to the following schedule:

<u>Project Area</u>	<u>Fee</u>
Less than 1 acre	\$100.00
1 acre to 4 acres	200.00
Over 4 acres to 10 acres	300.00
Over 10 acres	300.00 plus \$10 for each acre over 10

- c. Review: The City Engineer will review plans and computations for compliance with this ordinance.
 - d. Disapproval: Plans not meeting all requirements will be disapproved. Disapproved Plans will be returned along with statement as to reasons for disapproval. After plans are revised they shall be resubmitted to the City Engineer for review.
 - e. Approval: After approval, two (2) approved copies of the plans and one copy of the computations will be returned to the design engineer or owner/developer. One (1) copy of the approved plan and computations shall remain on file in the office of the City Engineer.
 - f. Drainage permit: The City Engineer will issue a separate permit for the construction and installation of storm drainage facilities only. The permit will be issued to the owner/developer and he shall be deemed the party responsible for compliance with the plans and this ordinance. The construction permit for the entire project will be issued by the City and permit fees for the drainage construction included in fee for the entire project. The City will not issue the construction permit until the drainage permit has been issued. No construction work shall commence until a building permit has been issued by the City.
2. Inspection. The City Engineer or his authorized representative or any other authorized City representative shall make inspections as necessary to determine if construction and maintenance conforms to the plans, studies and other related ordinances.

No person shall refuse entry or access to any authorized City representative who requests entry for purposes of making inspections, nor shall any person obstruct, hamper or interfere with any such representative while in the process of carrying out his official duties.

3. Violation. If, through inspection, it is determined that construction or maintenance does not comply with the plans or the owner-developer has not complied with other requirements of this ordinance a written notice to comply shall be served upon the owner-developer. The notice shall set forth the deficiencies and actions necessary to comply with the plans or other requirements of this ordinance, and shall state the time, not to exceed thirty (30) days, within which such actions must be completed.

If the owner-developer fails to comply within the stated time, he will be deemed in violation of this ordinance.

4. Enforcement. The City Engineer, or his designee, may, upon any owner/developer being deemed in violation, cause a citation to be issued to said person for his appearance in the Municipal Court of the City of Waycross, Georgia. Said citation shall state nature

of violation and time and date that he must appear. Such person will be subject to punishment as set forth in Section 1-6 of the Code of the City of Waycross, Georgia.

5. Appeals. In the event the owner/developer and the City Engineer cannot reach a satisfactory resolution to disputed points within the drainage plans, the plans shall be deemed disapproved by the city engineer. The City Engineer shall immediately notify the owner/developer of such disapproval. The owner/developer shall have 10 days from the City Engineer's disapproval to file an appeal to be submitted to the City Manager. If such action is not taken within a 10-day period, the owner/developer shall forfeit the right to appeal as provided in the ordinance and the plans will be deemed disapproved until plans have been revised and resubmitted to the City Engineer for a review.

Step 1: Appeals submitted to the City Manager shall be written for presentation which supports the owner/developer's position as to why certain regulations should be waived or modified, or other reason why the owner/developer disagrees with the decision of the City Engineer disapproving said plans.

Upon receipt of the appeal, the City Manager will review and meet with both the City Engineer and the owner/developer and hear both sides. Following the presentation, the City Manager will render a decision within 15 days.

Step 2: Following receipt of the City Manager's opinion, the owner/developer has 15 days to appeal the City Manager's decision to the Waycross City Commission. The Notice of Appeal shall be filed with the City Clerk.

The appeal to the Waycross City Commission shall be on the evidentiary record as developed before the appeal to the City Commission. The City Commission shall not hear or allow additional evidence. The owner/developer and the City Manager may submit a written argument or brief and may request oral argument. The decision to grant or deny oral argument shall be at the discretion of the City Commission.

The City Commission shall review the record and evidence at either a special called meeting or a regularly scheduled meeting within 20 days of the filing of the Notice of Appeal. The City Commission shall render a decision within a reasonable period of time thereafter. The decision of the City Commission shall be the final decision of the City.

SECTION 1.8 JUDICIAL REVIEW

Any person claiming to be aggrieved by a final decision or order of the City, after exhausting all administrative remedies, shall have the right to appeal de novo to the Superior Court of Ware County.

An appeal shall be effected by filing with the Clerk of Ware Superior Court (for property located in Ware County) or the Clerk of Pierce Superior Court (for property located in Pierce County) a written notice of appeal within thirty (30) days from the date on which such final decision or order of the City was made. The notice of appeal shall specifically state the grounds for appeal and shall be dated and signed by the appellant. The City Clerk shall certify to the appropriate Clerk of Superior Court the notice of appeal and any other papers specified by the appellant, including the decision or order appealed from, all of which papers and information become a part of the record on appeal to the Superior Court. The City may designate for inclusion in the record any parts thereof not designated by the person claiming to be aggrieved.

SECTION 1.9 VALIDITY

If any section, subsection, paragraph, clause, phrase, or provision of this ordinance shall be adjudged invalid or held unconstitutional, such decisions shall not affect the validity of the remaining portions of this ordinance unless it clearly appears that such other parts are wholly and necessarily dependent upon the part held to be invalid or unconstitutional.

SECTION 1.10 LIABILITY

Neither the approval of a plan under the provisions of this ordinance, nor the compliance with the provisions of this ordinance shall relieve any owner-developer from the responsibility for damage to any other person or property otherwise imposed by law nor impose any liability upon the City for damage to any person or property.

SECTION 1.11 EFFECTIVE DATE

This ordinance shall become effective on the date of its final adoption on second reading by the Commission of the City of Waycross, Georgia. However, the requirements of this ordinance shall not apply to construction projects where the owner/developer has been issued a valid building permits prior to the effective date.

SECTION 1.12

All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed.

SECTION 1.13

It is the intent of the Commission of the City of Waycross, Georgia and it is hereby enacted that the provisions of this ordinance shall become and be made a part of the Code of the City of Waycross, Georgia and that sections of this ordinance be renumbered or relettered to accomplish such intention."

SECTION 1.14.

If any portion of this ordinance shall be held to be invalid or unconstitutional, such invalidity or unconstitutionality shall not affect or impair the remaining portions unless it clearly appears that such other parts are wholly and necessarily dependent upon the part held to be invalid or unconstitutional.

SO ORDAINED, this the 2nd day of May, 2000.

CITY OF WAYCROSS, GEORGIA

BY:
MAYOR

ATTEST:

CITY CLERK

Read first time 04-18-00
Read second time and approved 05-02-00

**CHART 2
RUNOFF COEFFICIENTS FOR VARIOUS LAND-USES
TYPICAL VALUES****

Slope	Land-Use	Sandy Soils		Clay Soils	
		Min.	Max.	Min.	Max.
Flat (0-2%)	Woodlands	0.10	0.15	0.15	0.20
	*Pasture, grass & farmland	0.15	0.20	0.20	0.25
	Rooftops and pavement	0.95		0.95	
	Single family residential:				
	½ acre lots & larger	0.30	0.35	0.35	0.45
	Smaller lots	0.35	0.45	0.40	0.50
	Multi-family residential:				
	Duplexes	0.35	0.45	0.40	0.50
	Apartments, townhouses, and condominiums	0.45	0.60	0.50	0.70
Commercial and Industrial	0.50	0.95	0.50	0.95	
Rolling (2-7%)	Woodlands	0.15	0.20	0.20	0.25
	*Pasture, grass & farmland	0.20	0.25	0.25	0.30
	Rooftops and pavement	0.95		0.95	
	Single family residential:				
	½ acre lots & larger	0.35	0.50	0.40	0.55
	Smaller lots	0.40	0.55	0.45	0.60
	Multi-family residential:				
	Duplexes	0.40	0.55	0.45	0.60
	Apartments, townhouses, and condominiums	0.50	0.70	0.60	0.80
Commercial and Industrial	0.50	0.95	0.60	0.95	
Steep (7%+)	Woodlands	0.20	0.25	0.25	0.30
	*Pasture, grass & farmland	0.25	0.35	0.30	0.40
	Rooftops and pavement	0.95		0.95	
	Single family residential:				
	½ acre lots & larger	0.40	0.55	0.50	0.65
	Smaller lots	0.45	0.60	0.55	0.70
	Multi-family residential:				
	Duplexes	0.45	0.60	0.55	0.70
	Apartments, townhouses, and condominiums	0.60	0.75	0.65	0.85
Commercial and Industrial	0.60	0.95	0.65	0.95	

* Coefficients assume good ground cover and conservation treatment.

** Weighted coefficient based on percentage of impervious surfaces and green areas must be selected for each site.

Source: Dekalb County, Drainage Manual

CHART 1

STORM DRAINAGE CERTIFICATE

STATE OF GEORGIA
COUNTY OF WARE
CITY OF WAYCROSS

I, _____, a registered professional engineer, in the State of Georgia, hereby certify to the following regarding the development known as

located at _____
(Street Address)

lying in land lot _____ of the _____ district, Ware County, Waycross, Georgia:

1. That the drainage study and grading and drainage plans for said development have been prepared under my supervision.
2. That the drainage study and grading and drainage plans for said development comply with the requirements of the Comprehensive Storm Drainage Ordinance for the City of Waycross, Georgia.
3. That the execution of said plans will not allow the peak release rate of stormwater runoff from the post-developed site to exceed the peak release rate from said site in its natural undeveloped state.

This _____ day of _____, _____.

Georgia Registration No. _____

(Seal)

*** * * ENGINEER'S CERTIFICATE * * ***

AS-BUILT DETENTION/DRAINAGE FACILITIES

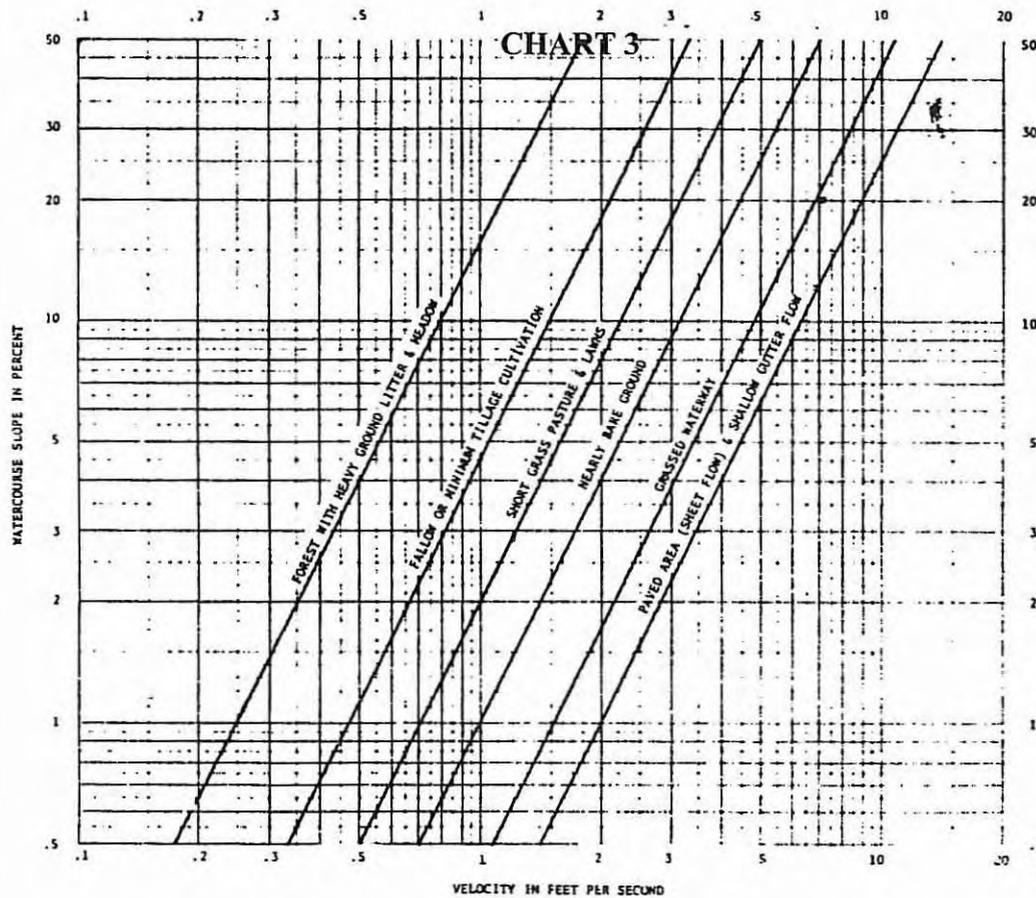
I, _____, a registered Professional Engineer, in the State of Georgia,
hereby certify that the detention and drainage facilities for the project known as _____

lying in land lot _____ of the _____ district, Ware County, Georgia, has (have) been constructed
in accordance with the approved plans and specifications and the requirements of the Comprehensive
Storm Drainage Ordinance for the City of Waycross, Georgia.

This the _____ day of _____, _____.

Georgia Registration No. _____

(Seal)



VELOCITIES FOR ESTIMATING OVERLAND FLOW TIME

Source: USDA Soil Conservation Service

VELOCITY ESTIMATE GUIDE - NATURAL WATERWAYS

Average Slope of Waterway (%)	Natural Channel Not Well Defined	Small, Shallow Channel	Main Drainage Channels in Natural State
1 - 2	1.5 fps	2 - 3 fps	3 - 6 fps
2 - 4	3.0 fps	3 - 5 fps	5 - 9 fps
4 - 6	4.0 fps	4 - 7 fps	7 - 10 fps
6 - 10	5.0 fps	6 - 8 fps	-----

Source: Dekalb County Drainage Manual