

Chapter 93 DEVELOPMENT REGULATIONS

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Sec. 93-1. General requirements.

- (a) All development shall be in accordance with the city zoning ordinance, latest edition.
- (b) All buildings three or more stories in height, excluding all single-family dwellings (attached or detached), shall be constructed with concrete and steel framing materials.
- (c) All subdivision developments shall be in accordance with the City Code of Ordinances appendix B, subdivision regulations.
- (d) LEED analysis. Applications for developments containing greater than 50,000 square feet of gross floor area shall submit a LEED (Leadership in Energy and Environmental Design) checklist at the time of application. The checklist shall be completed by a LEED accredited professional and shall utilize the most recent version of the LEED program as governed by the U.S. Green Building Council. The LEED review shall document the specific elements of LEED certification that can and cannot be met and shall include a cost estimate for each element whether it is being met or not. The LEED review process shall not be a factor in the approval or denial of any development. The LEED checklist shall be reviewed by the city planner but shall not be a part of the application as it moves forward through the remainder of the approval process. LEED analysis is for informational purposes only and is intended to aid the city in facilitating the awareness of better-building practices within the city.

(Ord. No. 555, pt. I, 8-15-06; Ord. No. 568, pt. I, 3-20-07)

Sec. 93-2. Plan information requirements.

The minimum information required to be shown on all plans submitted for review and approval:

- (1) *Project information:*
 - a. Project name;
 - b. Developer's name, address, and phone number;
 - c. Owner's name, address, and phone number if other than developer;
 - d. Date of plan and any revision.

- e. Provide name and phone number of 24-hour local erosion and sediment control contact.
- f. Appropriate state-licensed design professional's name, address, and phone number and signed seal. (Commercial and multi-unit residential require a registered professional engineer's seal. Single-unit residential requires a registered land surveyor.)
- g. Location/vicinity map;
- h. Land lot(s) and district;

(2) *Survey/base plan requirements:*

- a. North arrow;
- b. Graphic scale (minimum scale one inch=100 feet);
- c. Boundary and topographic survey signed sealed and dated by a state-registered land surveyor with proper boundary closing statement, title of datum used and tie in from a property corner to the nearest existing intersection center line;
- d. Boundary and topographic survey signed, sealed and dated by a state-registered land surveyor with proper boundary closing statement, title of datum used and tie in from a property corner to the nearest existing intersection center line; current boundary and ground-run topographic, utility and tree survey extending a minimum of 15 feet beyond property lines and all the way to the right-of-way line on the opposite side of any adjacent public street, with minimum two-foot contours and information on overhead and underground utilities (size, inverts, owners, easements), nearest fire hydrant and bus stop, nearest adjacent driveway in both directions, posted speed limit, lane striping, and spot elevations on the centerline, edges of pavement, and/or curbs, ditches, storm drains, etc. at a maximum of 50 feet on center.
- e. FIRM panel with 100-year flood plain boundary or statement that no flood plain is present on site.
- f. State on the plans the zoning, any variances, and zoning stipulations and case number as per the city council approval (including stipulations incorporated from review board recommendations);
- g. Show buffers as required by city zoning ordinance, state, and or federal laws (see individual districts for buffer requirements);
- h. Show all water courses whether ephemeral, seasonal, or year round with local and state buffers.
- i. State acreage of site, and disturbed acreage; and existing ground cover (wooded, grassed, pavement, etc.)
- j. Show adjacent property information including subdivision name, lot numbers, block letters, property owners, zoning, land uses, etc.;
- k. Indicate existing conditions, including but not limited to structures,

pavements widths, easements, fences, walls, walks, signs and buildings and approximate locations of all public utilities;

- l. Show adjoining roadways, with names, pavement widths, lengths of streets, and right-of-way width;
- m. State or show land lot lines and district on the plans. If it is not possible to show land lot lines on the plans, please provide a legal tie down for the property; e.g., intersection of two right-of-ways distance and bearing from property to land lot line intersection or right-of-way intersection.
- n. Show existing trees per city tree ordinance.
- o. Show ten-foot no access easement along the rear of all double frontage lots.
- p. Show location exact dimensions boundary of any existing cemetery and ownership information.

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-3. Site plan requirements.

The following information shall be contained in the construction drawings to demonstrate compliance with the above zoning requirements.

- (1) All information required under sections 93-2 (unless included elsewhere on the plans);
- (2) Twenty-four-hour emergency contact name and number in bold type (no smaller than 20 point) on cover sheet, sediment and erosion control plan, and grading plan;
- (3) Show all setbacks applicable to the zoning on plans;
- (4) State the use of the building sand square footage, height and if sprinklered or not on the plans;
- (5) For residential or multi-family developments, state the house or unit size on the plans;
- (6) Dimension buildings to the property lines, show locations of all doors of any type;
- (7) Show parking spaces calculations, including number existing (if any), and proposed, number of handicapped spaces and percentage of compact and full size;
- (8) Provide calculations of existing and proposed pervious and impervious areas;
- (9) Show on the plans exact boundary of any cemetery;
- (10) The location of signage shall be shown on the plans; and
- (11) Show ten-foot no access easement along the rear of all double frontage lots.

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-4. Grading/drainage plan.

- (a) All information required under section 93-2 (unless included elsewhere in the plans).
- (b) Topographic layout proposed grading of the development must be at two-foot (maximum) contour intervals based on mean sea level datum.
- (c) Site grading plans superimposed over existing drainage structures. Drainage area that contributes to each existing structure shall be specified or shown.
- (d) Location, and construction details, and design criteria of accessory structures (headwalls, drainage ditches, catch basins, junction boxes, drop inlets, retention areas, and retention outlet controls) shall be provided on plan and/or detail sheet.
- (e) Maximum cross-slope on sidewalks is three percent, on other pavement, six percent.
- (f) Northing and easting coordinates shall be shown for all stormwater and sanitary sewer appurtenances.
- (g) Specify bicycle and/or pedestrian safe grates as appropriate for all drain inlets.
- (h) Indicate top and bottom elevations of all walls, steps, and ramps.
- (i) Drainage at intersections indicated by flow arrows on plan.
- (j) The 100-year floodplain limits and elevations, or note absence (specify latest flood plain map and panel).
- (k) Structural detail and dimension of the detention pond including section through detention pond, dam or wall.
- (l) All retaining walls over eight feet in height must be certified by a state-licensed structural engineer.
- (m) Ingress/egress easement from a public street to stormwater detention structure and maintenance easement to include the surface area ten feet outside the area inundated by the 100-year storm event. The ingress/egress easement shall be a minimum of 20 feet wide with a grade of 20 percent or less.
- (n) Detail of outlet control structure.
- (o) Show limits of actual grading (plus ten-foot grading buffer at the bottom of proposed slopes) outside of the root protection zone for all trees to remain.
- (p) Establish easements for dedication of all stormwater drainage features directing concentrated flows across property lines.
- (q) All development must satisfy the requirements of chapter 42 of the Municipal Code concerning potential flood areas.
- (r) Show or indicate whether the site is part of and in compliance with a master/parent stormwater management plan.
- (s) Water quality BMPs as recommended in the Atlanta Regional Commission's Georgia Stormwater Management Manual, Volumes I and II. For any project that requires a land disturbance permit the project shall consider water quality. The following BMPs may be

used:

- (1) Wet ponds (extended detention for less than 20 acres)--ED-micro pool;
- (2) Extended dry detention ponds;
- (3) Wetland-constructed;
- (4) Infiltration trenches;
- (5) Dry swales;
- (6) Sand filter;
- (7) Bio-retention;
- (8) Vegetated filtration systems;
- (9) Any other best management practice approved by the city engineer.

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-5. Storm drainage profile drawing.

- (a) All information required under section 93-2 (unless included elsewhere in the plans);
- (b) Storm drainage profiles must be prepared to a scale no smaller than one inch = 100 feet horizontal x one inch = ten feet vertical;
- (c) Each profile should be labeled consistent with the labeling scheme used on the drainage plan view;
- (d) No main line storm pipe shall be less than 15 inches diameter; (roof laterals and landscape drainage are exempted from this requirement);
- (e) No pipe shall have a slope greater than 12 percent;
- (f) If a drop in a structure is greater than five feet, a reinforced base shall be provided for that structure;
- (g) The 25-year hydraulic grade line shall be shown for all storm pipes. The 100-year HGL shall be shown for all pipes within road rights-of-way;
- (h) No CMP shall be used in any road right-of-way;
- (i) All utility crossings shall be shown on storm profiles;
- (j) All structures shall be labeled as to type and function using standard county or GDOT call outs;
- (k) No outfall pipe shall have a slope greater than one percent. Maximum allowable velocity for storm sewer exit pipe is ten feet per second when flowing full or half-full based on Manning's Formula. Energy dissipater is required for exit velocity in excess of five feet per second;
- (l) Rip-rap and/or concrete aprons other acceptable aprons shall be shown for all outfalls;
- (m) A pipe chart representing all sizing and capacity calculations, including but not limited to pipe size, capacity, drainage area, velocity, and pipe material, shall be included;

- (n) The profile should must show the existing and proposed elevations along the length of the drainage system;
- (o) Open channel design must show the grade of the flow line of the channel and include a typical ditch section that provides a non-erodible velocity at design flows. Channel slopes less than one percent may be grassed; for channel shapes greater than 12 but less than three percent the designer must demonstrate calculated velocity at or less than five feet per second including a channel lining for design to accommodate the design philosophy; channel slopes over three percent must be approved by the city;
- (p) Channel lining (i.e., grass, concrete, etc.) must be specified along the profile;
- (q) Pipe material and bedding shall be specified;
- (r) Crown elevations must be matched at each junction structure or the upstream crown must be higher than the downstream crown;

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-6. Soil erosion/sediment erosion control plan and details.

- (a) The construction drawings shall contain sufficient detail in plan to demonstrate that all provisions of the soil erosion and sedimentation control ordinance will be satisfied for the duration of construction. More specifically, the design for sediment control shall consider the stages of construction. This may require that controls be modified or placed at future increments as the construction continues. It is the duty of the developer/owner to maintain and modify the plan to ensure compliance with local and state laws. Grading limits shall be clearly noted and buffer areas clearly defined on the drawings and identified and protected on the project site.
- (b) Natural vegetative stream buffers shall be noted on the plans and delineated by protective fencing (if contiguous to construction) during construction. Buffers shall be shown on the final plat prepared for recording along with language requiring protection by builders and homeowners. Controls to protect the buffers from disturbance during construction of dwellings on each lot shall be provided by the builders.
- (c) All information required under section 93-2 (unless included elsewhere in the plans).
- (d) Identify sediment/erosion control practices as specified in the Manual for Erosion and Sediment Control in Georgia.
- (e) Provide certification stating that the plan designer has visited the site prior to the design of the erosion and sediment control plans.
- (f) Sediment and erosion control design must be to a legible scale and the details of sufficient size as to be legible in the opinion of the reviewer.
- (g) Provide a schedule of construction activity on plan. Show starting and completion dates and sequence of events for all activities.
- (h) An undisturbed natural vegetative buffer as required by the Georgia Stormwater Management Manual from the top of each stream bank must be retained and shown on the plan adjacent to state waters in all areas. Buffers are to be delineated from the point of wrested vegetation;

- (i) All Sd2 and Sd3 BMPs shall include storage volume calculations;
- (j) Legend and symbols shall be included on all ES and PC drawings;
- (k) All silt fence shall be type C;
- (l) Rip-rap to have sizes specified by design engineer professional;
- (m) All silt fence shall be installed properly per construction details. However, no silt fence is to be mechanically installed (using a ditch witch or trenching machine) within the RPZ (root protection zone) of existing trees to remain. All such silt fence installation within the RPZ shall be performed by hand methods in the least intrusive and least destructive way possible. If possible, the silt fence shall be installed around the outside of the RPZ;
- (n) Show construction exit location and detail on plan with northing and easting. Specify dimensions and maintenance requirements. Dimensions shall be large enough to fully contain the largest vehicle(s) that may enter the site. A wheel wash down facility may be needed to prevent mud tracking into the paved street. Such mud tracking is not permitted and the developer will be required to maintain the street clean and clear. Washing or hosing mud down the storm drainage system is strictly forbidden. Streets must be cleaned with shovel or broom and the mud retained on site;
- (o) Indicate clearing limits. These should be minimized to retain the maximum vegetative cover possible. Provide tree protection fences and follow all measures outlined in tree protection plan for protection of vegetation to remain;
- (p) Provide vegetative plan for temporary and permanent stabilization practices including species, planting dates, seeding, fertilizer, and mulching rates. Provide for watering of temporary and permanent vegetation during establishment and maintenance period;
- (q) Water quality BMPs as recommended in the Atlanta Regional Commission's Georgia Stormwater Management Manual, Volumes I and II;
- (r) The applicant shall post a bond in the form of government security, cash, irrevocable letter of credit, or any combination thereof, of \$3,000.00 per acre or fraction thereof of the proposed land-disturbing activity, prior to issuance of the land disturbance permit. The bond must be issued by a licensed surety with power of attorney in the state. The bond shall be in force until the developer can demonstrate that all disturbed areas are stabilized and covered with one season's growth of permanent vegetation;
- (s) Provide the certification number of the design professional for all sites greater than one acre for all plans submitted after January 1, 2007;
- (t) General notes. The following notes must appear on the sediment erosion control plan:
 - (1) The escape of sediment from the site shall be prevented by the installation of erosion and sediment control measures and practices prior to, or concurrent with, land disturbing activities;
 - (2) Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for effective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source;
 - (3) Additional erosion control devices to be used shall be installed as required by the

city;

- (4) Any disturbed area exposed for a period greater than 14 days shall be stabilized with mulch or temporary seeding;
- (5) When hand planting, For all seeded areas mulch (hay or straw) should shall be uniformly spread over seeded area within 24 hours of seeding, and watered down;
- (6) Mulch may be used as a temporary cover. Concentrated flow areas, all slopes steeper than 2.5:1 and with a height of ten feet or greater (does not apply to retaining walls), and cuts and fills within stream buffers, shall be stabilized with the appropriate erosion control matting or blankets;
- (7) A city land disturbance permit must be displayed on-site at all times during construction and in plain view from a street;
- (8) Erosion and sediment control devices must be installed and inspected prior to any grading on site;
- (9) Sediment and erosion control devices must be checked after each storm event. Each device is to shall be maintained or replaced if sediment accumulation has reached one-half the capacity of the device. Additional devices must be installed if new channels have developed.

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-7. Landscape/tree planting plan requirements.

All projects which require a land disturbance permit must comply with the zoning ordinance and the tree preservation ordinance which establishes that a minimum density of trees be preserved or planted. Some projects may be subject to additional landscape requirements defined by the city zoning ordinance, stipulated as a condition of rezoning, or established as a matter of policy in this document. Required landscape plans shall for these situations must include the following:

- (1) All information required by the tree preservation ordinance administrative guidelines;
- (2) Landscape plans shall be prepared by and signed and sealed by a registered landscape architect;
- (3) The plans shall show background information on existing and proposed contours, existing trees to remain and those to be removed, proposed trees and other vegetation, proposed utilities, proposed temporary and permanent drainage features, proposed drives and other permanent structures to be demolished, etc., in the appropriate lineweight and linetype so that the plans can be read and understood as a representation of water flow, vegetation, silt fence, and other features as they ought to be working together to prevent excess land disturbance and runoff, erosion, siltation, and damage to trees to remain;
- (4) Planting details for each type of plant;
- (5) A delineation and designation of any required landscaped or undisturbed buffers;

- (6) A detail plant list indicating the size, type, and spacing, of and other requirements for all trees, and shrubs and groundcovers; and
- (7) Every effort should be made to landscape so as to minimize all maintenance required and minimize fertilizer water, plant food, and herbicide applications. Natural vegetation indigenous to the locate should be promoted where appropriate; exotic invasive vegetation should shall not be used be avoided.

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-8. Water layout plan.

Water system layouts must meet all requirements of the county.

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-9. Sanitary sewer plan.

Sanitary sewer plans must meet all requirements of the county.

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-10. Street plan/profile sheets.

- (a) Plan and profile sheets shall be provided for all streets.
 - (1) All traffic control devices, signs, signals, and markings (striping) to be used shall conform to the requirements of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD), latest edition.
 - (2) A state department of transportation (GDOT) permit may be required on state-maintained routes. Provide a copy of the GDOT approved plan or a letter stating that the permit is not required on all state routes.
- (b) The street plan/profile sheets shall contain at a minimum:
 - (1) All information required in section 100.02 (unless included elsewhere in the plans);
 - (2) Provide plans and profiles for proposed streets including intersections (scale to be one inch = 50 feet or 100 feet horizontal and one inch = ten feet vertical);
 - (3) Show and state percent grade of streets and length of vertical curves;
 - (4) Profiles shall show all utility crossings;
 - (5) Label all tangents, PIs, PCs, vertical and horizontal curves, K values, curve lengths, stations and chord bearings;
 - (6) Minimum K value is ten;
 - (7) No road shall have a grade greater than 14 percent for longer than 1,000 feet;
 - (8) No road shall have a grade greater than 15 percent;
 - (9) All intersections shall have a 50-foot vertical tangent approach at a maximum

slope of 2.00 percent;

- (10) All intersections shall have a 50-foot horizontal tangent;
- (11) Vertical and horizontal sight distance shall be shown graphically at all major intersections in accordance with GDOT regulations;
- (12) Minimum stopping sight distance requirements must be satisfied at all vertical curves;
- (13) Proposed vertical curves must be adequate for grades shown;
- (14) Show curve data necessary to reproduce street centerline;
- (15) Provide typical roadway cross section and pavement specifications;
- (16) Provide typical cul-de-sac detail which includes right-of-way and pavement radius. All cul-de-sac dimensions shall match current county standards;
- (17) Provide sidewalks and planting strips as required by the city zoning ordinance, latest revision. Show on plans and include detail;
- (18) Provide handicap ramps at all intersections, driveways, and curb encroachment locations. Show on plans and include detail;
- (19) Show and state all names and right-of-way (existing and proposed) sizes from centerline and pavement widths of all roads, which appear on plans.
- (20) Provide right-of-way miter with ten-foot legs at all intersections within subdivision. A 20-foot miter is required at major street intersections;
- (21) Developments with roadways requiring accel/decel lanes or one additional lane widening shall require 1:20 scale construction plans for the intersection approaches;
- (22) Dimension improvements (in feet) from street centerline to back of curb;
- (23) Indicate tapers beyond projected property lines or end of accel/decel, as appropriate;
- (24) Tapers are not to be curbed (transition curbing down unless tying to existing curb);
- (25) Show all existing and proposed grades and slopes at maximum two-foot contour intervals;
- (26) Provide appropriate spot elevations;
- (27) Clearly indicate curb type to be used and indicate transition locations. Show on plan and include detail;
- (28) All markings to be thermoplastic;
- (29) Depending upon the complexity and size of the development, separate roadway signing, marking and traffic signal plans may be required;
- (30) All traffic signal plans must be submitted to and approved by the county DOT or GDOT if it is a state highway.

- (c) For driveways, the following information shall be shown:
 - (1) Show proper widths of all driveways;
 - (2) State driveway radius;
 - (3) Provide spot elevations from edge of pavement along centerline of proposed drive(s);
 - (4) Provide driveway/intersection profiles;
 - (5) On one-way drives, show one-way arrows and provide details;
 - (6) Show all streets and non-single-family driveways near the proposed access on both sides of the road.

(Ord. No. 555, pt. I, 8-15-06)

Sec. 93-11. Stormwater management requirements.

- (a) *Criteria.* These standards apply to any new development or redevelopment site that meets one of the following criteria:
 - (1) New development or redevelopment that involves the creation, addition, or replacement of 5,000 square feet or more of impervious cover, or that involves land disturbance or other land development activities of 10,000 square feet or more; such development shall provide attenuation of the stormwater runoff to a level of 90 percent of that which would be generated from the site in its natural undeveloped state for all storms from the two-year, five-year, ten-year, 25-year, 50-year, and the 100-year storms calculated in accordance with the Georgia Stormwater Management Manual. Such development shall also be required to comply with the Water Quality requirements of the Georgia Stormwater Management Manual.
 - (2) Any new development or redevelopment that involves the creation, addition or replacement of less than 1,200 square feet of impervious cover shall not be required to meet the stormwater retention or water quality requirements.
- (b) *General requirements.* All new developments and redevelopment properties that generate a concentrated flow will be required to connect to nearby storm sewer systems via underground conveyances.
 - (1) All new developments and redeveloped properties that generate concentrated flows shall discharge such concentrated flows into a stabilized engineered channel, from the point of release to the point of connection to the public stormwater system in cases where the city engineer determines that connection to existing storm sewer systems via underground conveyances is not feasible.
 - (2) Concentrated surface stormwater discharge across streets, sidewalks, or other public improvements will not be permitted.
 - (3) In order to minimize the risk of pollution or adverse environmental impact, stormwater detention or retention ponds shall be set back from the property boundary a minimum distance as follows:

- a. Ten feet from a property line;
 - b. One hundred feet from a private well;
 - c. Two hundred fifty feet from a known contaminate source;
 - d. Fifty feet from a septic system tank or leach field.
- (4) Fencing. Permanent fencing at least six feet in height shall be required around all detention or retention facilities having a maximum water depth of more than three and one-half feet or a bank with a slope ratio greater than 1.5 horizontal to 1.0 vertical. Fencing shall be installed and maintained to allow free flow of runoff into the detention or retention facility. Fencing shall include a gate of sufficient size to permit entrance of equipment necessary to allow periodic maintenance.
 - (5) An indemnity agreement, signed by the property owner shall be submitted to the city before issuance of any permits for land disturbance activity;
 - (6) Upon completion of a project, and before a certificate of occupancy shall be granted, the applicant is responsible for certifying that the completed project is in accordance with the approved plans. Actual as-built plans of the project's stormwater management system shall be submitted. The plan must show the final as-built conditions and design specifications for all stormwater management facilities and must be certified by a state professional engineer;
 - (7) Upon completion of a project, and before a certificate of occupancy shall be granted, the applicant is responsible for certifying that the completed project is in accordance with the approved plans. Actual as-built plans of the project's stormwater management system shall be submitted. The plan must show the final as-built conditions and design specifications for all stormwater management facilities and must be certified by a state professional engineer;
 - (8) Prior to the issuance of a land disturbance permit, the owner shall submit a detailed schedule of long term maintenance and inspection activities. This schedule of activities shall be incorporated into a maintenance agreement to be entered into between the city and the owner. The schedule shall describe all maintenance and inspection activities and the parties responsible. The maintenance shall be in a form acceptable to the city and shall be recorded by the owner in the deed records of the clerk of superior court of the county.
 - (9) A maintenance bond for the project's stormwater management measures in the amount of five dollars per cubic foot of storage provided shall be required for a three-year time period. This bond shall be presented to the city along with a stormwater maintenance plan prior to issuance a certificate of occupancy for the completed project.
 - (10) Water quality. All stormwater runoff generated from a site shall be adequately treated before discharge. It will be presumed that a stormwater management system complies with this requirement if:
 - a. It is sized to treat the prescribed water quality treatment volume from the site, as defined in the Georgia Stormwater Management Manual;
 - b. Appropriate structural stormwater controls or nonstructural practices are

selected, designed, constructed or preserved, and maintained according to the specific criteria in the Georgia Stormwater Management Manual; and

- c. Runoff from hotspot land uses and activities identified by the city are adequately treated and addressed through the use of appropriate structural controls, nonstructural practices and pollution prevention practices.

(Ord. No. 555, pt. I, 8-15-06; Ord. No. 572, pt. I, 4-17-07)

Sec. 93-12. Hydrology report.

The site hydrology study shall contain, but not be limited to, the following information and data:

- (1) The hydrology study must be prepared by an appropriate design professional. The seal and signature of the design professional must be located on the cover sheet of the study;
- (2) Narrative explaining the rationale and method used in design;
- (3) Drainage area map showing all drainage basins and sub-basins. Drainage basins shall be clearly labeled and correlate to basin identifiers used in the study;
- (4) The drainage area map shall show the direction of flow and acreage of drainage area for stormwater entering and existing the site;
- (5) A summary shall be provided to show pre-development, post-development flows for the two-, five-, ten-, 25-, 50-, and 100-year storm events;
- (6) Allowable discharge from the site shall consider downstream conditions; explain impact on lower adjacent properties; describe the condition of the downstream receiving the concentrated discharge from the site; assess the impact to a point where the developed property is ten percent of the total drainage area or the next downstream construction whichever is smaller.
- (7) On-site and off-site drainage areas shall be clearly defined in the study and be consistent with the drainage area map;
- (8) For drainage areas that bypass detention in a developed state demonstrate how these flows are managed to a pre-development rate. Developed runoff must not increase at points where the flow is to exit along the subdivision boundary the site;
- (9) All new developments and re-developments (defined as removal and replacement of buildings, parking or other impervious surfaces over more than 40 percent of the site) must meet a pre-development runoff coefficient of 0.3 (rational method) or a curve number of 60 (SCS method), which corresponds to that coefficient normally used for a site in a wooded condition, in addition to a ten-percent reduction in runoff.
- (10) Demonstrate how the discharge velocities from the stormwater management structure are dissipated to non-erodible velocities before the runoff exits the site subdivision boundary. The outlet from the detention structure must be located a

minimum distance from the project boundary to provide adequate dissipation of energy. Under no circumstances shall the outlet be any closer than ten feet to the site boundary.

- (11) No corrugated metal pipe shall be used in any underground detention system;
- (12) Water quality BMPs as recommended in the Atlanta Regional Commission's Stormwater Management Manual, Volumes I and II.
- (13) Channel protection volume shall be required in all detention facilities and shall be determined as per the Georgia Stormwater Management Manual;
- (14) A total suspended solids work sheet shall be required for all projects as per the Georgia Stormwater Management Manual.

(Ord. No. 555, pt. I, 8-15-06)