



**MARTIN COUNTY
STORMWATER MANAGEMENT AND FLOOD PROTECTION STANDARDS
FOR
DESIGN AND REVIEW**

Section 1.1. Development Design Guidelines.

The guidelines of this section will be used in the review of all development. Applicants are encouraged to use innovative alternatives for meeting the objectives of Section 4.9.

- A. Intermittent watercourses, such as swales, shall be vegetated.
- B. Runoff from parking lots shall be treated to remove oil and sediment before it enters receiving waters.
- C. Detention and retention areas shall be designed where feasible so shorelines are sinuous rather than straight and so the length of shoreline is maximized, thus offering more space for the growth of littoral vegetation.
- D. The use of drainage facilities and vegetated buffer zones as open space, recreation and conservation areas is encouraged.

Section 1.2. Minimum Standards For Construction

The purpose of these standards is to provide minimum design criteria. In all cases, the intent of these regulations shall govern, and good design practice shall meet or exceed these minimum standards.

- A. All construction shall be in compliance with the latest edition of the Florida Department of Transportation Roadway and Traffic Design Standards unless an alternate is approved by the County Engineer.
- B. Swales
 - 1. Swale geometry. Swales will have a maximum side slope of 4 to 1 (H:V). The minimum shoulder width shall be five (5) feet on one side to allow for maintenance. The minimum bottom width of a swale shall be one foot. The minimum depth of a swale shall be eight (8) inches.

2. Swale erosion protection. Swales shall be provided with permanent erosion protection. Such protection may be turf, using an approved type grass, or an approved type of pavement liner may be utilized. When turf protection is used the swales shall be sodded, sprigged or seeded a lateral distance extending two feet outside of the top of bank of the swale. Mulching in accordance with the Florida Department of Transportation standards shall be acceptable.
3. Driveways across swales. Driveways across swales shall have paved inverts at proper elevation or drainage pipes of a minimum of fifteen (15) inches, or shall be placed beneath the driveway.

C. Lots under two (2) acres shall slope toward streets or other adequate outfalls.

Section 1.3. Construction Requirements.

- A. Construction standards shall be as specified in these regulations or the current Florida Department of Transportation Roadway and Traffic Design Standards: (hereafter FDOT standards).
- B. For all roads and streets, the entire width of right-of-way shall be cleared of all trees, vegetation and other obstacles, except for trees and shrubbery outside the limits of actual construction which are of value as landscaping and which do not interfere with drainage.
- C. Within stormwater management or flood problem areas cleared, all stumps shall be removed and all roots shall be removed to a depth of at least twelve (12) inches below the finished grading line.
- D. Ditches shall be cleared and grubbed to lines three (3) feet outside the top of bank.
- E. Where poor foundation material for the roadbed or for any structure exists, it shall be excavated and backfilled with suitable material.
- F. Embankments shall be placed in successive layers, approximately eight (8) inches in thickness, for the entire width of the embankment. Any material deposited in water shall be dumped successively in uniformly distributed areas until the fill is thick enough to support the hauling equipment while subsequent layers are placed.
- G. Compaction shall be as specified in the FDOT Standards.
- H. Any areas subject to erosion, shall be sodded, grassed or mulched in accordance with FDOT Standards and a suitable stand of grass established.
- I. On slopes or ditches which are too steep for the use of grassing, suitable erosion protection shall be provided by ditch or slope pavement, adequate for permanent protection. In no case shall any area which is subject to detrimental erosion be approved unless such protection is provided.

Section 1.4. Application requirements.

The following information shall be submitted as part of a development application. Depending on the unique circumstances of each project, additional information may be requested to document that the project is in compliance with Section 4.9. Information submitted to Martin County shall be signed and sealed by a Florida registered engineer, architect, or surveyor as required by Florida Statutes.

A. Master Plan approval (Major Projects):

1. A brief written description of the location and purpose of the project, the existing conditions of the site, the existing conditions surrounding the site, and the proposed improvements.
2. A detailed analysis of the perimeter conditions of the site to establish any drainage flows on or off of the site, including:
 - a. Topographic map with one foot contour lines extending a minimum of 200 feet off of the project site.
 - b. A plan showing adjacent wetlands, adjacent developments, or any significant adjacent features.
 - c. A written narrative describing the perimeter conditions along each side of the project with statements about the presence or absence of on or off site flows.
 - d. A written description and analysis of the outfall route of the project to the ultimate receiving body. The outfall route may be the limiting factor for the project discharge rate. If a positive legal outfall for the project cannot be established, the project must be designed to hold the 100 year storm on site.
3. A detailed analysis of the interior conditions of the site to establish the predevelopment rate and volume of runoff from the site, including:
 - a. Topographic map with one foot contour lines,
 - b. Soils description and map, land cover description and map, groundwater table analysis, wetlands analysis and map,
 - c. A plan showing existing development, FEMA flood zones, location relative to the Coastal High Hazard Area, or any other significant onsite features.
 - d. A written narrative describing the interior conditions of the project.
 - e. Calculations to establish the predevelopment runoff rate and volume. The Rational Formula is generally not an acceptable calculation. (Lots subject to

Minor Site Plan review will be required to meet the retention requirements of that approval.)

4. A written description and analysis of the water quality treatment to be used on the project. In the absence of a detailed water quality analysis, design of the project in accordance with state standards for 95 percent removal (OFW standards) will be the minimum acceptable treatment level. Lots subject to Minor Site Plan review must meet the retention requirements of that approval.

B. Final Development Plan approval (Major Projects) and Minor Projects:

1. The requirements of Section 1.4.A.
2. A detailed analysis of the post development conditions of the site to establish the post development rate and volume of runoff from the site, including:
 - a. A drawing or map showing proposed alterations of the site (including proposed excavations, dredging, grading, filling or clearing, impervious surfaces and water management facilities) and the location, dimensions and the elevations of the first finished floor of all buildings to be constructed.
 - b. A description, including water quality information, of all watercourses, water bodies and wetlands on the site or into which water flows from site.
 - c. Description of the extent to which any watercourse, natural or man-made, will be altered or relocated as a result of proposed development.
 - d. Calculations to establish the post development runoff rate and volume that document compliance with Section 4.9.6 of the LDR.
 - e. Delineation of the critical flood zone, the flood hazard zone, and the flood protection elevation, as defined in Section 4.9 of the LDR.
 - f. A detailed description of the proposed stormwater management and flood protection system including:
 - (1). The point of discharge, channel, direction, rate of flow, volume and quality of runoff that will be conveyed from the site, with a comparison to predevelopment conditions. (Wet weather discharge calculations shall assume average wet weather water elevations).
 - (2). Detention and retention areas, including plans for the discharge structures, ponds, maintenance plans, and predictions of the quality of the discharge water.
 - (3). A plan for the control of erosion and sedimentation which describes in detail the type and location of control measures; the stage of development at which they will be installed or used; and, provisions for inspections and maintenance.

- (4). Any alterations in elevations, velocity, frequency, or duration of flooding on the site of development or on adjacent lands caused by diversion, displacement, obstruction or increases in discharges.
 - (5). Analysis of surface water and groundwater levels, site soil storage and changes caused by the development.
3. A plan showing existing development, the boundary of the FEMA flood zone, location of the project relative to the Coastal High Hazard Area, or any other significant onsite features.
4. Elevation in relation to NGVD to which any nonresidential building will be floodproofed in all flood hazard zones and coastal high hazard zones.
5. Certification by a registered professional engineer or architect that any nonresidential floodproofed structure meets the floodproofing criteria in Section 4.9 in all flood hazard zones and coastal high hazard zones.
6. An analysis of the post development water quality discharge from the site that documents compliance with Section 4.96 Design Standards.
7. The Maintenance Plan required by Section 4.9.8 of the LDR.
8. As a condition of approval , and prior to commencement of any construction, the applicant shall deliver to the County Engineer complete plans prepared by a registered professional engineer licensed to practice in the State of Florida, which shall include the following:
 - a. An index of all sheets included in the plans with drawing number references.
 - b. A topographic map of the development related to National Geodetic Vertical Datum (NGVD), with contours shown at not greater than one foot intervals.
 - c. A drainage map of the basin or basins within which the development lies shall be submitted. U.S. Geodetic Quadrangles sheets may be used. All basins and the sizes of the basins in acres must be shown. The outlines and sizes in acres of all existing and proposed drainage areas shall be shown and related to corresponding points of flow concentration. Flow paths shall be indicated throughout, including final outfalls from the development and basins.
 - d. Plans showing the proposed design features and typical sections of canals, swales and all other open channels, storm sewers, all drainage structures, roads and curbs, and other proposed construction. The design shall meet the requirements of Section 4.9.

- e. Plans and profiles of all proposed roads. Where proposed roads intersect existing roads, elevations and other pertinent details shall be shown. The design shall meet all applicable requirements of the LDR.
9. As a condition of approval , the applicant shall deliver to the County Engineer, complete specifications prepared by a registered professional engineer licensed to practice in the State of Florida, including specifications to cover construction of all the work proposed, providing for good workmanship and standard practices of construction to achieve the desired finished product as designed by the engineer and accepted by the County Engineer. These specifications shall meet or exceed the Florida Department of Transportation Roadway and Traffic Design Standards as pertains to construction methods.
 10. Copies of all required permits, approvals and other necessary documents are required prior to construction.

C. Single family residential applications:

1. Topographic map with one foot contour lines extending a minimum of 25 feet off of the project site.
2. A plan showing existing adjacent development, FEMA flood zones, location relative to the Coastal High Hazard Area, or any other significant onsite features.
3. A drawing or map showing proposed alterations of the site including proposed excavations, dredging, grading, filling or clearing, impervious surfaces and water management facilities and the location, dimensions and the elevations of the first finished floor of all buildings to be constructed including:
 - a. A detail on the plan for the control of erosion and sedimentation at the perimeter of the area disturbed by construction which describes in detail the type and location of control measures.
 - b. A detail on the plan of any temporary culverts that may be necessary to maintain the flow through roadside swales during construction.
 - c. Cross section details of the fill to be placed on the lot.
 - d. Cross section details of swales that are required to direct runoff to the street or other approved outfall.
 - e. Cross section detail with elevations of the driveway and driveway culvert (if applicable) where the driveway crosses a roadside swale.

Section 1.5. Design Standards
Reserved.