

26.17.02.01 (7/2/08)

**.01 Purpose and Scope.**

A. The primary [goal] goals of the State and local stormwater management programs [is] are to maintain after development, as nearly as possible, the predevelopment runoff characteristics, and to reduce stream channel erosion, pollution, siltation and sedimentation, and local [flooding.] flooding by implementing environmental site design to the maximum extent practicable and using appropriate structural best management practices only when necessary.

B. (text unchanged)

26.17.02.01-1 (7/2/08)

**.01-1 Incorporation by Reference.**

A. In this chapter, the following documents are incorporated by reference.

B. Documents Incorporated.

(1) The 2000 Maryland Stormwater Design Manual, Volumes I & II (Maryland Department of the Environment, April 2000) which includes Supplement 1 is incorporated by reference by the Administration and shall serve as the official guide for stormwater management principles, methods, and practices.

(2)—(3) (text unchanged)

26.17.02.02 (7/2/08)

**.02 Definitions.**

A. (text unchanged)

B. In this chapter, the following terms have the meanings indicated:

(1)—(6) (text unchanged)

(7) "Concept plan" means, for the purposes of this chapter, the first of three required plan approvals that includes the information necessary to allow an initial evaluation of a proposed project.

[(7)] (8)—[(13)] (14) (text unchanged)

(15) "Environmental site design (ESD)" means using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources. Methods for designing ESD are specified in the Design Manual.

[(14)] (16) — [(15)] (17) (text unchanged)

(18) "Final stormwater management plan" means, for the purposes of this chapter, the last of three required plan approvals that includes the information necessary to allow all approvals and permits to be issued by the appropriate authority.

[(16)] (19) (text unchanged)

(20) "Impervious area" means any surface that does not allow stormwater to infiltrate into the ground.

[(17)] (21) (text unchanged)

(22) "Maximum extent practicable (MEP)" means, for the purposes of this chapter, designing stormwater management systems so that all opportunities for using ESD planning techniques and treatment practices are exhausted before a structural BMP is implemented on a development project.

[(18)] (23)—[(21)] (26) (text unchanged)

(27) "Planning techniques" means a combination of strategies employed early in project design to reduce impacts from development and to incorporate natural features into a stormwater management plan.

[(22)] (28) (text unchanged)

[(23)] (29) "Redevelopment" means any construction, alteration, or improvement [exceeding] disturbing 5,000 square feet [of land disturbance performed on sites] or more of impervious area where existing land use is commercial, industrial, institutional, or multifamily residential.

[(24)] (30)—[(26)] (32) (text unchanged)

(33) "Site" means any combination or single tract, lot, or parcel of land in one ownership, or is contiguous and in diverse ownership, where development is to be performed as part of a unit, subdivision, or project.

(34) "Site development plan" means, for the purposes of this chapter, the second of three required plan approvals that includes the information necessary to allow a detailed evaluation of a proposed project.

(35) "Stormwater" means water that originates from a precipitation event.

[(27)] (36)

[(28) "Stormwater management plan" means a set of drawings or other documents submitted by a person as a prerequisite to obtaining a stormwater management approval, which contain all of the information and specifications required by an approving agency.]

[(29)] (37) (text unchanged)

(38) "Stormwater management system" means natural areas, ESD practices, stormwater management measures, and any other structure through which stormwater flows, infiltrates, or discharges from a site.

[(30)] (39)—[(31)] (40) (text unchanged)

26.17.02.03 (7/2/08)

### **.03 General Provisions.**

A. The Administration is responsible for [the implementation] implementing and [supervision of] supervising the stormwater management program which is established by the Stormwater Management Subtitle. This responsibility shall include, but is not limited to:

(1) [Establishment of] Establishing policies, procedures, standards, model ordinances, and criteria relating to stormwater management;

(2) [The review and approval of:] Reviewing and approving:

(a) County stormwater management ordinances,

(b) Municipal stormwater management ordinances,

(c) Stormwater management program implementation and operation, and

(d) Stormwater management [plan] plans for State and federal construction projects which shall be subject to the requirements of this chapter;

(3) [Inspection and enforcement of] Inspecting and enforcing stormwater management on all State and federal construction projects which shall be subject to the requirements of this chapter;

(4) (text unchanged)

(5) [Development of] Developing guidelines and regulations;

(6) Assisting [the ]local jurisdictions with improving and maintaining their technical capabilities regarding:

(a)—(c) (text unchanged)

(7) (text unchanged)

(8) [Development of] Developing public educational programs; and

(9) [Evaluation of] Evaluating the effectiveness of stormwater control measures in eliminating adverse stream quality impacts.

B. (text unchanged)

C. Initially, and at least once every 3 years after that, the Administration shall inspect and review the stormwater management programs of the counties and municipalities and evaluate the effectiveness of the programs.

(1) To be found acceptable, a stormwater management program shall have:

(a) An Administration-approved stormwater management ordinance [in] in effect;

(b) Stormwater management planning and approval processes that provide:

(i) Stormwater management for every land development subject to this chapter, [and]

(ii) The implementation of ESD to the MEP, and

[(ii)] (iii) (text unchanged)

(c) (text unchanged)

(2) (text unchanged)

D. (text unchanged)

E. In order to assure that Administration-approved programs reflect the policies established in the Design Manual, each county or municipality shall submit proposed revisions to its ordinance to the Administration on or before [December 31, 2000.] July 1, 2009. Descriptions of other

program elements shall be submitted as requested by the Administration in order to ensure that the policies and practices established in the Design Manual have been implemented by [July 1, 2001.] December 31, 2009.

26.17.02.04 (7/2/08)

**.04 Stormwater Management Ordinances.**

A. (text unchanged)

B. Each local ordinance shall provide for:

(1) [Submission and approval of a stormwater management plan;] A comprehensive stormwater management plan review and approval process that:

(a) Considers all aspects of project planning, design, and construction from initial conception through final approval;

(b) Requires the submission, review, and approval of interim plans at an increasing level of detail for specific stages of project development; and

(c) Provides for coordinated input for all plans from all appropriate agencies including, but not limited to soil conservation districts and departments of planning, zoning, public works, and environmental protection.

(2)—(6) (text unchanged)

26.17.02.05 (7/2/08)

**.05 When Stormwater Management is Required.**

A. Unless the particular activity is exempted by this regulation, a person may not develop any land without an approved final stormwater management plan from the approving agency. A grading or building permit may not be issued for a property unless a final stormwater management plan has been approved that is consistent with:

(1)—(5) (text unchanged)

B. The following activities are exempt from the provisions of this chapter:

(1) (text unchanged)

(2) [Developments] Any developments that do not disturb over 5,000 square feet of land area; and

(3) (text unchanged)

C. Waivers.

(1)—(2) (text unchanged)

(3) If watershed management plans consistent with §E of this regulation have not been developed, stormwater management quantitative control waivers may be granted to projects:

(a) That have direct discharges to tidally influenced receiving waters; or

[(b) That do not increase the post-development peak discharge for the 2-year storm event by more than 10 percent in those areas of the State where the 2-year storm serves as the overbank flood protection volume according to the Design Manual; or]

[(c)] (b) (text unchanged)

(4) (text unchanged)

D. Redevelopment.

[(1) An approving agency shall require that stormwater management be addressed for redevelopment. Proposed redevelopment project designs shall include:

- (a) A reduction in impervious area;
  - (b) The implementation of stormwater management practices; or
  - (c) A combination of both §D(1)(a) and (b) of this regulation to result in an improvement to water quality.
- (2) Unless otherwise specified by watershed management plans developed according to §E of this regulation, all redevelopment projects shall reduce existing site impervious area by at least 20 percent.
- (3) Where site conditions prevent the reduction of impervious area, stormwater management practices shall be implemented to provide water quality control for at least 20 percent of the site's impervious area.
- (4) When a combination of impervious area reduction and stormwater management practice implementation is used for redevelopment projects, the combination of impervious area reduction and the area controlled by a stormwater management practice shall equal or exceed 20 percent.
- (5) An approval authority may allow practical alternatives where conditions prevent impervious area reduction or on-site stormwater management. Practical alternatives include, but are not limited to:
- (a) Fees paid in an amount specified by the approving agency;
  - (b) Off-site BMP implementation for a drainage area comparable in size and percent imperviousness to that of the project;
  - (c) Watershed or stream restoration;
  - (d) Retrofitting; or
  - (e) Other practices approved by the appropriate authority.]



(1) An approving agency shall require that stormwater management be addressed for redevelopment. Unless otherwise specified by watershed management plans developed according to §E of this regulation, all redevelopment project designs shall:

(a) Reduce existing impervious area by at least 50 percent according to the Design Manual;

(b) Implement ESD to the MEP to provide water quality treatment for at least 50 percent of the existing impervious area; or

(c) Use a combination of both §D(1)(a) and (b) of this regulation for at least 50 percent of the existing site impervious area.

(2) Alternative stormwater management measures may be used to meet the requirements in §D(1) of this regulation provided that the developer satisfactorily demonstrates to the approving authority that impervious area reduction and ESD have been implemented to the MEP.

Alternative stormwater management measures include, but are not limited to:

(a) An on-site structural BMP to provide water quality treatment for at least 50 percent of the existing impervious area;

(b) An off-site structural BMP to provide water quality treatment for an area equal to or greater than 50 percent of the existing impervious area; or

(c) A combination of impervious area reduction, ESD implementation, and an on-site or off-site structural BMP for an area equal to or greater than 50 percent of the existing site impervious area.

(3) An approving agency may develop separate policies for providing water quality treatment for redevelopment projects when the requirements of §D(1) and (2) of this regulation cannot be met.

Any separate redevelopment policy shall be reviewed and approved by the Administration and may include, but not be limited to:

(a) Retrofitting;

(b) Stream restoration;

(c) Pollution trading; or

(d) Design criteria based on watershed management plans developed according to §E of this regulation.

(4) Stormwater management shall be addressed according to the new development requirements in the Design Manual when existing site impervious area is less than or equal to 40 percent or for any net increase in impervious area.

[(6)] (5)—[(8)] (7) (text unchanged)

E. (text unchanged)

26.17.02.06 (7/2/08)

## **.06 Minimum Control Requirements.**

A. County and Municipal Requirements.

(1) (text unchanged)

[(2) Caroline, Dorchester, Kent, Queen Anne's, Somerset, Talbot, Wicomico, and Worcester counties and their incorporated municipalities shall require that the recharge volume, water quality volume, and the overbank flood protection volume for the 2-year frequency storm event be used to design BMPs according to the Design Manual.

(3) The City of Baltimore, Allegany, Anne Arundel, Baltimore, Calvert, Carroll, Cecil, Charles, Frederick, Garrett, Harford, Howard, Montgomery, Prince George's, St. Mary's, and Washington counties and their incorporated municipalities shall require that the recharge volume, water quality volume, and channel protection storage volume sizing criteria be used to design BMPs

according to the Design Manual. Control of the 10-year frequency storm event is required according to the Design Manual if the appropriate approving agency determines that historical flooding problems exist and downstream floodplain development and conveyance system design cannot be controlled.]

(2) All counties and their incorporated municipalities shall require that the planning techniques, nonstructural and structural practices, and design methods specified in the Design Manual be used to implement ESD to the MEP. Stormwater management plans for development projects subject to this chapter shall be designed using the ESD sizing criteria, recharge volume, water quality volume, and channel protection storage volume criteria according to the Design Manual. The MEP standard is met when channel stability is maintained, predevelopment groundwater recharge is replicated, nonpoint source pollution is minimized, and structural stormwater management practices are used only if determined to be absolutely necessary.

(3) Control of the 2-year and 10-year frequency storm events is required according to the Design Manual if any county or municipality determines that additional stormwater management is necessary because historical flooding problems exist and downstream floodplain development and conveyance system design cannot be controlled.

(4) (text unchanged)

B. Alternate minimum control requirements may be adopted subject to Administration approval. The Administration shall require a demonstration that alternative requirements will implement ESD to the MEP and control flood damages, accelerated stream erosion, water quality, and sedimentation, including, if necessary, address comprehensive watershed studies.

C. (text unchanged).

26.17.02.08 (7/2/08)

## **.08 Stormwater Management Measures.**

A. The ESD planning techniques and practices and structural [and nonstructural] stormwater management measures established in this regulation and the Design Manual shall be contained in all county and municipal ordinances. Each ordinance shall require that [one or a combination of these practices be used] a developer demonstrate that ESD has been implemented to the MEP before a structural BMP is considered in developing a stormwater management plan.

[B. Structural Stormwater Management Measures.]

### B. ESD Planning Techniques and Practices.

(1) The following planning techniques shall be applied according to the Design Manual to satisfy the minimum control requirements established in Regulation .06 of this chapter:

(a) Preserving and protecting natural resources;

(b) Conserving natural drainage patterns;

(c) Minimizing impervious area;

(d) Reducing runoff volume;

(e) Using ESD practices to promote groundwater recharge;

(f) Using green roofs, permeable pavements, reinforced turf, and other alternative surfaces;

(g) Limiting soil disturbance, mass grading, and compaction; and

(h) Clustering development.

(2) The following ESD treatment practices shall be designed according to the Design Manual to satisfy the minimum control requirements established in Regulation .06 of this chapter:

(a) Disconnection of rooftop runoff;

(b) Disconnection of non-rooftop runoff;

(c) Sheetflow to conservation areas;

(d) Rainwater harvesting;

(e) Submerged gravel wetlands;

(f) Landscape infiltration;

(g) Infiltration berms;

(h) Dry wells;

(i) Micro-bioretenion;

(j) Rain gardens;

(k) Swales;

(l) Enhanced filters; and

(m) Any practices approved by the Administration.

(3) The use of the ESD planning techniques and treatment practices specified in this section shall not conflict with existing State law or local ordinances, regulations, or policies. Counties and municipalities shall modify planning and zoning ordinances and public works codes to eliminate any impediments to implementing ESD to the MEP according to the Design Manual.

### C. Structural Stormwater Management Measures.

(1)—(2) (text unchanged)

### [C. Nonstructural Stormwater Management Measures.

(1) The following nonstructural stormwater management practices shall be applied according to the Design Manual to minimize increases in new development runoff:

(a) Natural area conservation;

(b) Disconnection of rooftop runoff;

(c) Disconnection of non-rooftop runoff;

(d) Sheet flow to buffers;

(e) Grass channels; and

(f) Environmentally sensitive development.

(2) The use of nonstructural stormwater management practices shall be encouraged to minimize the reliance on structural BMPs.

(3) County and municipal ordinances shall allow for reductions in the minimum control requirements in Regulation .06 of this chapter when nonstructural stormwater management practices are incorporated into site designs according to the Design Manual.

(4) The use of nonstructural stormwater management practices may not conflict with existing State or local laws, ordinances, regulations, or policies.]

D. County and municipal ordinances shall specify that the [nonstructural] ESD planning techniques and treatment practices and structural stormwater management [practices] measures used to [reduce] satisfy the minimum control requirements in Regulation .06 of this chapter are documented and remain unaltered by subsequent property owners. Approval from the appropriate approving agency should be obtained before [nonstructural] any stormwater management [practices are] practice is altered.

E. Alternative ESD planning techniques and treatment practices and structural [and nonstructural] stormwater management [practices] measures may be used for new development [water quality] runoff control if they meet the performance criteria established in the Design Manual and are approved by the Administration. Practices used for redevelopment projects shall be approved by the appropriate approving agency.

F. (text unchanged)

26.17.02.09 (7/2/08)

## **.09 Stormwater Management Plans.**

A.—D. (text unchanged)

E. Contents and Submission of Stormwater Management Plans.

[(1) The owner/developer is responsible for submitting a stormwater management plan in the form of construction drawings which meet the design requirements specified in the Design Manual or are otherwise consistent with this chapter. The plan shall be accompanied by a report that includes sufficient information to evaluate the environmental characteristics of affected areas, the potential impacts of the proposed development on water resources, and the effectiveness and acceptability of measures proposed for managing stormwater runoff. The owner/developer shall certify on the drawings that all land clearing, construction, development, and drainage will be done according to the approved plan.]

(1) The owner/developer is responsible for submitting phased stormwater management plans for development projects according to the comprehensive review and approval process specified in Regulation .04 of this chapter, the Design Manual, and county and municipal stormwater management ordinances. Plans shall be submitted for the concept, site development, and final stormwater management construction phases of project design. Comments from the appropriate approval authority shall be addressed and approval received at each phase of project design prior to subsequent submissions.

(2) The owner/developer shall submit a concept plan that provides sufficient information for an initial assessment of the proposed project and whether stormwater management can be provided according to this chapter and the Design Manual. Plans submitted for concept approval shall include, but not be limited to:

(a) A map at a scale specified by the appropriate approval authority showing site location, existing natural features, water and other sensitive resources, topography, and natural drainage patterns;

(b) The anticipated location of all proposed impervious areas, buildings, roadways, parking, sidewalks, utilities, and other site improvements;

(c) The location of the proposed limit of disturbance, erodible soils, steep slopes, and areas to be protected during construction;

(d) Preliminary estimates of stormwater management requirements, the selection and location of ESD practices to be used, and the location of all points of discharge from the site; and

(e) A narrative that supports the concept design and describes how ESD will be implemented to the MEP.

(3) Following concept plan approval by the appropriate authority, the owner/developer shall submit site development plans that reflect comments received during the previous review phase. Plans submitted for site development approval shall be of sufficient detail to allow site development to be reviewed and include but not be limited to:

(a) All information provided during the concept plan review phase;

(b) Final site layout, exact impervious area locations and acreages, proposed topography, delineated drainage areas at all points of discharge from the site, and stormwater volume computations for ESD practices and quantity control structures;

(c) A proposed erosion and sediment control plan that contains the construction sequence, any phasing necessary to limit earth disturbances and impacts to natural resources, and an overlay



plan showing the types and locations of ESD and erosion and sediment control practices to be used; and

(d) A narrative that supports the site development design, describes how ESD will be used to meet the minimum control requirements, and justifies any proposed structural stormwater management measure.

(4) Following site development approval by the appropriate authority, the owner/developer shall submit final erosion and sediment control and stormwater management plans that reflect the comments received during the previous review phase. Plans submitted for final approval shall be of sufficient detail to allow all approvals and permits to be issued according to the following:

(a) Final erosion and sediment control plans shall be submitted according to COMAR 26.17.01.05; and

(b) Final stormwater management plans shall be submitted for approval in the form of construction drawings and be accompanied by a report that includes sufficient information to evaluate the effectiveness of the proposed runoff control design.

[(2)] 5. Reports submitted for final stormwater management plan approval shall [include:] include, but not be limited to:

[(a)] A brief narrative description of the project;

[(b)] (a) Geotechnical investigations including soil maps, borings, site-specific recommendations, and any additional information necessary for the [proposed] final stormwater management design;

[(c)] Description of all water courses, impoundments, and wetlands on or adjacent to the site or into which stormwater directly flows;

(d) Hydrologic computations, including drainage area maps depicting predevelopment and post-development runoff flow path segmentation and land use;]

(b) Drainage area maps depicting predevelopment and post-development runoff flow path segmentation and land use;

(c) Hydrologic computations of the applicable ESD and unified sizing criteria according to the Design Manual for all points of discharge from the site;

[(e)] (d) Hydraulic and structural [computations;] computations for all ESD practices and structural stormwater management measures to be used;

[(f) Structural computations;

(g) Unified sizing criteria volume computations according to the Design Manual; and]

(e) A narrative that supports the final stormwater management design; and

[(h)] (f) Any other information required by the approving agency.

[(3)] (6) Construction drawings submitted for final stormwater management plan approval shall [include the following:] include, but not be limited to:

(a) (text unchanged)

(b) [Topography showing existing] Existing and proposed [conditions,] topography and proposed drainage areas, including areas necessary to determine downstream analysis for the proposed stormwater management facilities;

(c)—(f) (text unchanged)

(g) Structural and construction details including representative cross sections for all components of the proposed drainage system or systems and stormwater management facilities;

(h)—(j) (text unchanged)

(k) A table showing the ESD and unified sizing criteria volumes required in the Design Manual;

(l)—(m) (text unchanged)

(n) [A] An inspection and maintenance schedule;

(o)—(q) (text unchanged)

26.17.02.10 (7/2/08)

## **.10 Construction Inspection and Enforcement.**

A. (text unchanged)

B. Regular inspections shall be made and documented for each ESD planning technique and practice at the stages of construction specified in the Design Manual. At a minimum, all ESD and other nonstructural practices shall be inspected upon completion of final grading, the establishment of permanent stabilization, and before issuance of use and occupancy approval.

[B.] C. (1)—(6) (text unchanged)

[(7) For nonstructural practices—upon completion of final grading, the establishment of permanent stabilization, and before issuance of use and occupancy approval.]

[C.] D.—[D.] E. (text unchanged)

[E.] F. Once construction is complete, as-built plan certification shall be submitted by either a professional engineer or professional land surveyor licensed in the State to ensure that ESD planning techniques, treatment practices, and [constructed] structural stormwater management [practices] measures and conveyance systems comply with the specifications contained in approved plans. At a minimum, as-built certification shall include a set of drawings comparing the approved stormwater management plan with what was constructed. Other information shall be submitted as required by the approving agency.

[F.] G. (text unchanged)

26.17.02.11 (7/2/08)

**.11 Maintenance.**

A. Maintenance requirements established in this regulation shall be contained in all county and municipal ordinances and shall provide for inspection and maintenance. The owner shall perform or cause to be performed preventive maintenance of all completed ESD treatment practices and structural stormwater management [practices] measures to ensure proper functioning. The responsible agency of the county or municipality shall ensure preventive maintenance through inspection of all stormwater management systems. The inspection shall occur during the first year of operation and then at least once every 3 years after that.

B. Inspection reports shall be maintained by the county or municipality on all stormwater management systems and shall include the following:

(1)—(2) (text unchanged)

(3) An assessment of the quality of the stormwater management system related to ESD treatment practice efficiency and the control of runoff to the MEP.

[(3)] (4)—[(4)] (5) (text unchanged)

C. (text unchanged)