

Virginia Soil and Water Conservation Board
Stormwater Management Regulations Technical Advisory Committee (TAC)
Thursday, May 18, 2006, 9:00 a.m.
Virginia Department of Forestry
Charlottesville, Virginia

Stormwater Management Regulations Technical Advisory Committee Members Present

Michelle Brickner, Land Development Services, Fairfax County
Michael E. Doczi, Michael E. Doczi & Associates, PLLC
Jack Frye, Virginia Department of Conservation and Recreation
Shelby T. Hertzler, Rockingham County
Lee Hill, Virginia Department of Conservation and Recreation
William J. Johnson, Department of Public Works, City of Virginia Beach
Steve Kayser, Erosion and Sediment Control, Loudoun County
Joe Lerch, Chesapeake Bay Foundation
Ved "Wade" Malhotra, Department of Engineering, Newport News
R.T. "Roy" Mills, Virginia Department of Transportation
Pat A. O'Hare, Home Builders Association of Virginia
Reginald Parrish, U.S. Environmental Protection Agency
Jeff Perry, Environmental Management Engineer, Henrico County
Alyson Sappington, Thomas Jefferson Soil and Water Conservation District
Gerald Seeley, Jr., Department of Environmental Quality
William H. Street, James River Association
John Tippet, Friends of the Rappahannock
Burton R. Tuxford, II, Virginia Department of Environmental Quality

Stormwater Management Regulations Technical Advisory Committee Members Not Present

Jerry W. Davis, Northern Neck PDC
Alecia Daves-Johnson, Piedmont Soil and Water Conservation District
Bob Kerr, Kerr Environmental Services Corporation
David Rundgren, New River Valley PDC
Phil Schirmer, City of Roanoke
Ingrid Stenbjorn, Town of Ashland

Facilitator

Judy Burtner, J. Burtner & Associates
Kathryn Burruss, J. Burtner & Associates

DCR Staff

David C. Dowling, Director of Policy, Planning and Budget
Joan Salvati, Director, Division of Chesapeake Bay Local Assistance
Eric R. Capps, E&S Control and Construction Permitting Manager
Jim Echols, Regional Manager
Michael R. Fletcher, Director of Development
Kevin Landry, Stormwater Compliance Specialist
Christine Watlington, Policy, Planning and Budget Analyst
Ryan Brown, Office of the Attorney General

Observers

Joe Battiata, Contech Stormwater Solutions
Amber Foster, James River Association
Curtis Hickman, Kerr Environmental
Doug Moseley, PBS&J
Rick Parrish, SELC
John Sheehan, Aqualaw PLC
Steve Snell, City of Richmond
Laura Wheeling, Hampton Roads PDC
Charles Williamson, Prince William County

Welcome and Introductions

Ms. Burtner welcomed members and observers to the second session of the Stormwater Management Technical Advisory Committee.

She reviewed the objectives for the day:

- Review the preliminary discussion draft of Part II regulations providing guidance to DCR relative to the draft's content, technical approach, level of detail, flow and completeness.
- Advance the work of Part III by providing specific input into the areas of administration, staffing, plan review, inspections, enforcement and maintenance.

Ms. Burtner reviewed the plan for the morning session.

- Introductory Remarks – Orientation to Session
 - Review objectives, agenda, participation guidelines
 - Introductions
- Review Minutes
- Review – Preliminary Discussion Draft of Part II (Local Program Technical Water Quality and Quantity Criteria)

- Two Reviews
 - Review of Draft in its entirety – Ms. Burtner explained that Mr. Hill would present the entire draft without interruption
 - Review/discussion of Draft by sections – Ms. Burtner explained that the TAC would review and comment on the Draft section by section
- Part III – Collection of Input in Preparation for Developing Draft Regulations (Local Program Administrative & Delegation Procedures and Requirements)
- Next Steps
- Closure

Ms. Burtner acknowledged that several members had difficulty receiving the minutes via email.

A member suggested that could just send the links instead of the actual documents.

Ms. Burtner noted that for future reference that staff would forward links where appropriate and that all documents would be posted at the following web address:

<http://www.dcr.virginia.gov/lawregs.htm>

Ms. Burtner reviewed the participation guidelines discussed at the last session:

- Take care of your own needs
- Focus – statewide program to be applied statewide
- Focus – program to be brought into compliance with state code
- Work toward consensus
- Search for common ground keeping in mind diversity of state & local governments' resources
- Share airtime
- Side conversations to a minimum
- Electronic devices on stun/mute
- Return from breaks on time
- Work to stay present, focused & conscious

Ms. Burtner asked members, staff and observers to introduce themselves.

She noted that index cards were provided for members and observers to offer additional comments. She requested that observers write comments and present them to DCR staff for inclusion in the discussion as appropriate.

Ms. Burtner said that the Department would like changes or corrections to the minutes by close of business on Tuesday, May 23.

Review and Discussion of Part II Preliminary Draft Concepts and Language

Ms. Burtner said that at the first meeting a large amount of time was spent on brainstorming of ideas and concerns with regard to the regulations. She said that DCR staff had prepared a preliminary draft discussion document for Part II for presentation at this meeting.

Ms. Burtner said that for the purposes of review Mr. Dowling and Mr. Hill would present the preliminary draft first, without comment from members. Following this presentation, Ms. Burtner said the TAC would review the draft a second time providing opportunity for members to comment on each section.

Ms. Burtner said that DCR was requesting that the TAC address the following questions:

- Is there any content missing?
- Are we on the right track on how we are approaching subject (technical approach)?
- Is there enough detail or is there too much?
- Is there a logical flow?
- Are there any potential conflicts between sections?
- Are there areas that need further exploration/discussion?

Review of Preliminary Draft

Mr. Dowling explained that the document provided to TAC members was the work of an internal discussion team. He said that it was a work in progress and noted that there were key concepts staff wanted to present.

Mr. Dowling noted that the draft does not constitute final policy considerations and that the document is subject to change.

He said that the concepts present an approach that would improve water quality and quantity, and would be beneficial to the environment.

Mr. Dowling said that these ideas were a test balloon to see if staff is heading in the right direction.

Mr. Dowling reviewed the committee charge:

Committee Charge

Develop, in coordination and cooperation with the Environmental Protection Agency, amendments to the Virginia Soil and Water Conservation Board's Virginia Stormwater Management Program (VSMP) Permit Regulations (§§ 4 VAC 50-60-10 et seq.) to address

- **the minimum water quality and quantity criteria** and administrative functions **that a local stormwater management program must contain** to receive program delegation by the Board for administration of the VSMP or portions, thereof,
- administrative procedures by which the Board makes its delegation determinations,
- DCR program administration and oversight procedures, and
- Revisions to the statewide stormwater permit fee schedule to a level sufficient to carry out the stormwater management program by localities and the Department.

Existing Part II Language Review

Mr. Hill reviewed the existing Part II language.

Part II Stormwater Management Program Technical Criteria

- **4 VAC 50-60-40. Applicability.**
 - Explains that this Part specifies the water quality (and soon water quantity) technical criteria for every stormwater management program and land-disturbing activity.
- **4 VAC 50-60-50. General.**

Specifies general stormwater management issues such as:

 - Flooding and channel erosion impacts to receiving streams shall be measured at each point of discharge,
 - Specifications for design storms,
 - Assumptions for computing runoff,
 - Compliance with all applicable laws and regulations,
 - Design standards for non-regulated impounding structures,
 - Pre-development and post-development runoff rates verification practices,
 - Discharge of outflows to an adequate channel,
 - Application of stormwater management criteria to the land disturbance from proposed residential, commercial, or industrial subdivisions,
 - Need for inspection and maintenance plans for all stormwater management facilities,
 - Avoidance of stormwater management impoundment structure construction in designated 100-year floodplains,
 - Natural channel characteristics preservation,

- Compliance with Erosion and Sediment Control Law and regulation, and
- The siting of flood control and stormwater management facilities in Resource Protection Areas with specified provisions.

- **4 VAC 50-60-60. Water Quality**
 - Compliance with the water quality criteria may be achieved by applying performance-based criteria or technology-based criteria to either the site or a planning area.

- **4 VAC 50-60-70. Stream channel erosion.**
 - Establishes that properties and receiving waterways downstream of any land-disturbing activity shall be protected from erosion and damage due to changes in runoff rate of flow and hydrologic characteristics.

- **4 VAC 50-60-80. Flooding.**
 - Establishes that downstream properties and waterways shall be protected from damages from localized flooding due to changes in runoff rate of flow and hydrologic characteristics, including but not limited to, changes in volume, velocity, frequency, duration and peak flow

- **4 VAC 50-60-90. Regional (watershed-wide) stormwater management plans.**
 - This section enables localities to develop regional stormwater management plans.
 - The objective of a regional stormwater management plan is to address the stormwater management concerns in a given watershed with greater economy and efficiency by installing regional stormwater management facilities versus individual site-specific facilities. The result will be fewer stormwater management facilities to design, build and maintain in the affected watershed.

Overview of Part II Amendments

Mr. Hill gave an overview of the Part II working document as drafted by staff for TAC discussion and direction.

Part I Definitions

- “Environmentally Sensitive Design”
- “Low Impact Development or LID”
- “Maximum extent practicable”

- “Person” (revised)
- “Riparian buffer”
- “Stormwater management criteria”
- “Water quality volume” (revised)

“Environmentally Sensitive Design” means the use of planning tools that protect our natural and rural resource land, limit impervious surfaces, and concentrate new growth in existing population centers or suitable areas served by appropriate infrastructure. Such tools include but are not limited to the use of riparian buffers adjacent to environmentally sensitive features; better site design; erosion and sediment control; land conservation; land use planning; and programs that advance citizen environmental stewardship and pollution prevention.

“Low Impact Development or LID” means a design strategy with the goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design. Hydrologic functions of storage, infiltration and ground water recharge, as well as the volume and frequency of discharges are maintained through the use of integrated an distributed micro-scale stormwater retention and detention areas, reduction of impervious surfaces, and the lengthening of runoff flow paths and flow time. Other strategies include the preservation/protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, valuable (mature) trees, flood plains, woodlands, and highly permeable soils.

“Maximum extent practicable or MEP” means a level of implementing stormwater practices and programs which achieve pollutant reductions and take into account the best available technology, cost effectiveness and other competing issues such as human safety and welfare, endangered and threatened resources, water quality and quantity, and geographic features, MEP allows flexibility in the way to meet the performance standards and may vary based on the performance standard and site conditions.

“Riparian buffer” means an area of trees, shrubs, grasses, or combination thereof that is (i) at least thirty-five feet in width, (ii) adjacent to a body of water, and (iii) managed to maintain the integrity of stream channels and shorelines and reduce the effects of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals.

“Stormwater management criteria” means the minimum standards of effectiveness for every stormwater management program and land disturbing activity as setout in Part II of these regulations.

“Water quality volume” means the volume equal to the first 1/2 inch of runoff multiplied by the impervious surface of the land development project.

Part II Overview

Part II Stormwater Management Program Technical Criteria

4 VAC50-60-40. Applicability

4 VAC50-60-50. General Repeal

4 VAC50-60-53. General Requirements

4 VAC50-60-56. Applicability of other laws and regulations

4 VAC50-60-60. Water quality. Repeal

4 VAC50-60-63. Water Quality and Quantity

4 VAC50-60-66. Runoff Characteristics

4 VAC50-60-70. Stream channel erosion. Repeal

4 VAC50-60-73. Frequency

4 VAC50-60-76. Linear development projects

4 VAC50-60-80. Flooding. Repeal

4 VAC50-60-83. Stormwater management impoundment structure or facilities

4 VAC50-60-86. Environmentally Sensitive Design and LID

4 VAC50-60-90. Regional (watershed wide) stormwater management plans. Repeal

4 VAC50-60-93. Stormwater Management Plan Development

4 VAC50-60-96. Watershed stormwater management plans

4VAC50-60-40. Applicability.

This part specifies stormwater management technical criteria for every stormwater management program and land-disturbing activity unless otherwise exempted in 10.1-603.8 B in order to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater.

4VAC50-60-53. General Requirements

A. The natural, physical, chemical, and biological characteristics and functions of the receiving waters must be maintained, protected, or improved.

B. Properties and receiving waterways downstream of any land-disturbing activity shall be protected from sediment deposition, erosion and damage due to changes in runoff rate of flow and hydrologic characteristics, including but not limited to, changes in volume, velocity, frequency, duration, and peak flow rate of stormwater runoff in accordance with the minimum water quality and quantity standards set out these regulations.

1. Flooding and channel erosion impacts to receiving streams due to land-disturbing activities shall be measured at each point of discharge from the

land disturbance and such determination shall include any runoff from the balance of the watershed which also contributes to that point of discharge.

2. If stream channel erosion or localized flooding is an existing predevelopment condition than the post-development conditions shall be in accordance with § 4VAC50-60-63.

C. Stormwater management impoundment structures that are not covered by the Impounding Structure Regulations (4VAC50-20) shall be engineered for structural integrity during the 100-year storm event.

D. Riparian buffers for all regulated land disturbing activities shall be established, or existing buffers maintained, adjacent to surface waters.

4VAC50-60-56. Applicability of other laws and regulations

A. Construction or modifications of stormwater management facilities or channels shall comply with all applicable laws and regulations.

B. Land-disturbing activities shall comply with the Virginia Erosion and Sediment Control Law (§ 10.1-560 et seq. of the Code of Virginia) and attendant regulations.

C. Land-disturbing activities shall comply with the Chesapeake Bay Preservation Act where applicable (§ 10.1-2100 et seq. of the Code of Virginia) and attendant regulations.

4VAC50-60-63. Water Quality and Quantity

A. Land disturbing activities that are converting forested land must maintain predevelopment water quality and water quantity-related runoff characteristics and site hydrology. [IDEAL SITUATION; NEED TO PROTECT WATER QUALITY; HOW TO ACHIEVE?]

B. Land disturbing activities on lands that are not forested must reduce existing pollutant load by 20% to improve water quality and improve water quantity-related runoff characteristics and site hydrology such that stream channel erosion and localized flooding is reduced by satisfying the following design standards for flow rate capacity and velocity requirements for natural or manmade channels associated with the land-disturbing activity:

1. detain the water quality volume and to release it over 48 hours;
2. detain and release over a 24-hour period the expected rainfall volume resulting from the one year, 24-hour storm; and
3. reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow

rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition. [IMPROVE LANGUAGE]

C. Natural channel characteristics shall be preserved to the maximum extent practicable to protect water quality and quantity.

D. Improvements in water quality may be achieved by applying performance-based criteria or the technology-based criteria in the Virginia Stormwater Management Handbook.

E. BMPs not included in the Virginia Stormwater Management Handbook which target appropriate nonpoint source pollutants may be allowed at the discretion of the permit issuing authority provided calculations and scientific studies demonstrate pollutant reduction requirements.

F. In an effort to reduce degradation, additional control measures may be required on a case-by-case basis to maintain and protect water quality and quantity. Examples of this may include but are not limited to the storage of fertilizers, pesticides, herbicides and other products harmful to water quality.

4VAC50-60-66. Runoff Characteristics

A. For purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition (if the lands are pastures, lawns, or parks), with good cover (if the lands are woods), or with conservation treatment (if the lands are cultivated); regardless of conditions existing at the time of computation.

B. Pre-development and post-development runoff characteristics and site hydrology shall be verified by physical surveys and calculations that are consistent with good engineering practices.

4VAC50-60-73. Frequency

The specified design storms shall be defined as either a 1.5, 2, or 10-year 24-hour storm using the rainfall distribution recommended by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) when using NRCS methods such as TR55.

4VAC50-60-76. Linear development projects

Linear development projects shall control post-developed stormwater runoff for flooding in accordance with a stormwater management plan or a watershed or regional stormwater management plan.

4VAC50-60-83. Stormwater management impoundment structure or facilities

A. Construction of stormwater management impoundment structures or facilities within tidal or nontidal wetlands and perennial streams, shall be avoided to the maximum extent practicable. Economic hardship is not sufficient reason to grant an exception from this requirement.

B. Stormwater management impoundment structures or facilities that drain or treat water from multiple development projects or from a significant portion of a watershed may be allowed in Resource Protection Areas defined in the Chesapeake Bay Preservation Act, provided that (i) the permit issuing authority has conclusively established that the location of the facility within the Resource Protection Area is the optimum location; (ii) the size of the facility is the minimum necessary to provide flood control, stormwater water quality treatment, or both; and, (iii) the facility must be consistent with a stormwater management program that has been approved by the Board.

C. Construction of stormwater management impoundment structures within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain shall be avoided to the maximum extent practicable. When this is demonstrated to be unavoidable, all stormwater management facility construction shall be in compliance with all applicable regulations under the National Flood Insurance Program, 44 CFR Part 59.

D. Construction of stormwater management impoundment structures or facilities shall only occur in karst areas after a thorough geological study of the area has been conducted.

In karst areas where no features have been identified sediment traps and basins shall have impervious liners installed. Stormwater management impoundment structures or facilities or temporary erosion and sediment control measures shall be monitored for failures. Should failures occur immediate steps to re-establish appropriate measures shall be taken.

No adverse environmental impacts shall occur to any identified karst features and no permanent stormwater management impoundment structures or facilities or temporary erosion and sediment control measures will be constructed in karst features. Discharge of stormwater directly into a karst feature shall not be permitted unless all requirements are met for class 5 injection wells.

E. Safety measures shall be incorporated into the design of all stormwater management impoundment structures or facilities. These measures may include but are not limited to safety ledges, fencing, warning signs, antivortex devices, stadia rod indicating depth at the lowest point and outlet structures designed to limit public access.

F. Stormwater management impoundment structures or facilities shall be designed to minimize the propagation of insects, particularly mosquitoes, provided that design features proposed will not negatively impact the functions of the facility.

4VAC50-60-86. Environmentally Sensitive Design and LID

Persons responsible for land disturbing activities are encouraged to investigate the use of environmentally sensitive design and LID measures to address water quality, water quantity, runoff rate, and the frequency components of this regulation.

4VAC50-60-93. Stormwater Management Plan Development

A. A stormwater management plan for a regulated land disturbing activity shall apply these stormwater management criteria to the land disturbing activity as a whole. Hydrologic parameters shall reflect the total land disturbance and shall be used in all engineering calculations.

B. Individual lots in developments shall not be considered separate land-disturbing activities, but rather the entire development shall be considered a single land disturbing activity through a common plan of development.

C. The stormwater management plan shall include all sources of surface runoff and all sources of subsurface and groundwater flows converted to surface runoff, such as sump-pump flows.

4VAC50-60-96. Watershed stormwater management plans

A. The objective of a watershed stormwater management plan is to address the stormwater management concerns in a given watershed with optimal economy and efficiency. The result of advanced design and implementation will be a better integration of stormwater management facilities and practices with improved long-term performance in the affected watershed to address the needed water quality and quantity reductions setout in § 4VAC50-60-63. It is anticipated that the implementation of watershed stormwater management plans will not only help mitigate the impacts of new development, but should also provide for the remediation of erosion, flooding or water quality problems caused by existing development within the given watershed.

B. Localities are encouraged to develop watershed stormwater management plans which address water quality and quantity on a watershed-wide basis. State and federal agencies intending to develop large tracts of land are encouraged to develop or participate in watershed plans where practicable.

Mr. Hill noted that the first draft is very aggressive.

Staff attempted to address the question of what is best for water quality. From that point staff would rely on the TAC give direction and to address what is feasible and to offer revisions to this discussion document.

Mr. Hill referenced the minutes of the last meeting, specifically the brainstorming session with regard to Part II. Those minutes are available at the following address:

<http://www.dcr.virginia.gov/docs/stormwat/stmwtrmins050406.pdf>

Ms. Burtner explained that at this point Mr. Hill would again go through the working draft section by section and TAC members would be asked to comment and offer suggestions.

She asked for questions prior to that process. The following issues were raised.

- What is the difference between “Environmentally Sensitive Design” and “Low Impact Development?”
- What is the overall process of working through the draft and coming to final language?
- Design elements were a concern
- Where the draft states 20% reduction for non-forested development (Powerpoint slided #26) how does that apply to redevelopment of existing sites?
- How is “redevelopment” defined?

A member commented that the detailed revision of the Part II regulations did not appear to be contemplated in the NOIRA as issued. The member said the notice focused on fees and delegation to local governments.

Mr. Dowling said in answer to some of the questions that the process will be determined based on the conversations of the TAC. He said that staffed hoped to have clear direction so that the drafting team can refine/rework specific language and work through comments received at the meeting.

A member noted that there were new things to consider and suggested members would need additional time to review and comment.

Mr. Dowling said that the process would be determined by the discussions. He said that staff would like to take this methodically and not rush the process.

Ms. Burtner said that the plan was to go back through the section and receive comments. She reminded members that this was a working document for discussion. She said that the committee was not yet to the consensus stage and that staff was seeking input and perspective on the language and concepts so that the appropriate revisions could be made.

Mr. Dowling explained that the language presented both repealed sections and created other new sections. Much of the draft was a reworking of material already present in the regulations with about 10% new material.

Mr. Dowling emphasized that the specific NOIRA stated the TAC will amend, modify and delete language regarding minimal criteria. This addressed the Part II minimum criteria by which a local program may be administered.

Mr. Hill began the draft section by section review allowing for member comments.

Part I Definitions

“Environmentally Sensitive Design”

“Environmentally Sensitive Design” means the use of planning tools that protect our natural and rural resource land, limit impervious surfaces, and concentrate new growth in existing population centers or suitable areas served by appropriate infrastructure. Such tools include but are not limited to the use of riparian buffers adjacent to environmentally sensitive features; better site design; erosion and sediment control; land conservation; land use planning; and programs that advance citizen environmental stewardship and pollution prevention.

Mr. Hill said that the difference between Environmentally Sensitive Design (ESD) and Low Impact Development (LID) is that ESD is more of an overall planning concept. LID is hydrologic related, attempting to replicate pre- and post-development situations. LID is a component of ESD.

A member said that the word design seems to indicate a site and that ESD seemed to be more of a planning function.

Mr. Hill said that EPA uses the ESD and LID terminology.

A member suggested that better site design needed a definition.

A member asked if citizen environmental stewardship and pollution prevention was intended to mean citizen pollution prevention.

A member said that he identified ESD as taking into account things like preservation of existing buffers as opposed to LID which may tend to be more after the fact.

A member said the term “served by appropriate infrastructure” should be defined.

Mr. Dowling noted that advanced environmental stewardship and pollution prevention were intended to be separate thoughts. He said staff would edit that definition accordingly.

Low Impact Development or LID

“Low Impact Development or LID” means a design strategy with the goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design. Hydrologic functions of storage, infiltration and ground water recharge, as well as the volume and frequency of discharges are maintained through the use of integrated an distributed micro-scale stormwater retention and detention areas, reduction of impervious surfaces, and the lengthening of runoff flow paths and flow time. Other strategies include the preservation/protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, valuable (mature) trees, flood plains, woodlands, and highly permeable soils.

A member said that one of the primary tools that LID uses is infiltration to maintain the original predevelopment characteristics. The member said LID is very difficult to apply in those areas. He said he liked the use of the word “encourage.” LID must be maintained in a manner that is palatable to the public.

Another suggested that LID would be incorporated into the stormwater management plan.

It was noted that LID is not an “end all” in clay soils and high water tables.

A member noted that money is a factor when it comes to the actual repair or maintenance of LID and whether this will occur over the long term.

It was noted that localities need the flexibility to determine where LID is best applied.

A member said that the question should be how the final product helps local governments to develop a structure that leads to LID.

It was noted that LID related to hydrology and that it was important to keep this in mind when integrating it into a plan.

A member questioned whether the guidelines should require that a developer examine the soil resources of a site before developing.

A member responded that a developer can only invest so much money before finding out that building on the site is not affordable. There should be a balance in the requirements.

A member said that if the statute required that LID be encouraged that there should be incentives for the builder. There should be a tangible merit.

Another member noted that many localities have pre-development meetings. The preliminary plan needs a good review by the developer as well as the engineer.

A member said that was often difficult for localities. Localities need to consider what is done about inspections and enforcement.

It was noted that staff numbers can be impacted by the fees charged.

Maximum Extent Practicable

“Maximum extent practicable or MEP” means a level of implementing stormwater practices and programs which achieve pollutant reductions and take into account the best available technology, cost effectiveness and other competing issues such as human safety and welfare, endangered and threatened resources, water quality and quantity, and geographic features, MEP allows flexibility in the way to meet the performance standards and may vary based on the performance standard and site conditions.

A member noted that the TAC for the development of regulations for non-tidal wetlands had used a definition of MEP from the Army Corps of Engineers program. The member agreed to provide the definition to DCR but noted that he believed the definition is in the regulations.

A member asked if the maximum extent practicable related only to the particular site in question.

Mr. Hill said that was an item for consideration. He said that MEP boils down to an economic issue. How much should the state require to be spent to achieve the desired result. He noted that one way would be to require a certain amount spent per pound of pollution removed.

A member asked the context for the use of MEP in the regulations.

A member noted that the EPA and the Clean Water Act specifically address MEP for MS4 stormwater management programs. They don't require that MS4 stormwater

management programs meet water quality standards. However, construction permits are required to meet water quality standards.

A member expressed a concern that economic justification should also take into account cost effectiveness. The economic benefits of keeping the water clean should be considered.

Ms. Burtner said that it appeared members were saying that MEP would not be the standard when there is a TMDL.

A member said his impression was that MEP was chosen because it was subjective and moveable based on changing technology needs.

It was noted that MEP can be subjective and that circumstances change with technology, need and political will. The MEP was meant to be adaptable.

Ms. Burtner summarized the conversation:

- There are issues relative to the definition
- Other definitions have been used
- There were concerns about the context
- Some problems can actually be measured

Riparian Buffer

“Riparian buffer” means an area of trees, shrubs, grasses, or combination thereof that is (i) at least thirty-five feet in width, (ii) adjacent to a body of water, and (iii) managed to maintain the integrity of stream channels and shorelines and reduce the effects of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals.

A member asked if this was in addition to the RPA.

Mr. Hill said the RPA would take precedence.

This is both a practice and a landscape feature.

A member said it might be important to qualify grasses to avoid manicured lawns being considered.

A member asked for a definition of riparian forest buffer.

A member asked if this would also apply to TMDL. The member noted that agriculture farmers want to provide 50 ft. for the buffer, but cannot get any credit for that amount.

A member said that body of water needed to be defined.

Stormwater Management Criteria

“Stormwater management criteria” means the minimum standards of effectiveness for every stormwater management program and land disturbing activity as set out in Part II of these regulations.

A member asked if the criteria were to be applied to the site or the locality. There is a need to clarify that issue.

Water Quality Volume

“Water quality volume” means the volume equal to the first 1/2 inch of runoff multiplied by the impervious surface of the land development project.

It was noted that the 1/2 inch requirement is specified in state law and that there would be no need to revise this section.

A member noted that channel needs to be defined. Defining it as a waterway is not sufficient.

It was noted that all definitions will be revisited after Part II is finished to be sure definitions are consistent throughout the document.

Mr. Dowling concurred that this definition was indeed specified in law and could not be changed in the regulation.

Part II Overview

Mr. Hill noted that sections in red are being repealed. DCR looked at comments received at the last meeting on what we needed to address, and tried to organize accordingly.

Part II Stormwater Management Program Technical Criteria

4 VAC50-60-40. Applicability

4 VAC50-60-50. General Repeal

4 VAC50-60-53. General Requirements

4 VAC50-60-56. Applicability of other laws and regulations

- 4 VAC50-60-60. Water quality.** Repeal
- 4 VAC50-60-63. Water Quality and Quantity**
- 4 VAC50-60-66. Runoff Characteristics**
- 4 VAC50-60-70. Stream channel erosion.** Repeal
- 4 VAC50-60-73. Frequency**
- 4 VAC50-60-76. Linear development projects**
- 4 VAC50-60-80. Flooding.** Repeal
- 4 VAC50-60-83. Stormwater management impoundment structure or facilities**
- 4 VAC50-60-86. Environmentally Sensitive Design and LID**
- 4 VAC50-60-90. Regional (watershed wide) stormwater management plans.** Repeal
- 4 VAC50-60-93. Stormwater Management Plan Development**
- 4 VAC50-60-96. Watershed stormwater management plans**

Mr. Hill noted that sections repealed were, in most cases, included in other sections.

4VAC50-60-40. Applicability.

This part specifies stormwater management technical criteria for every stormwater management program and land-disturbing activity unless otherwise exempted in 10.1-603.8 B in order to protect the quality and quantity of state waters from the potential harm of unmanaged stormwater.

Mr. Hill said the question to address was how a local program should operate. How is it determined what goes into each project?

A member suggested this needed to identify the general components that apply. It was noted that this needs clarification of whether this is program, a project, or both.

4VAC50-60-53 General Requirements

A. The natural, physical, chemical, and biological characteristics and functions of the receiving waters must be maintained, protected or improved.

A member said this could be a situation where MEP may apply.

A member asked if it made sense to reference meeting designated uses. That would indicate whether it needs to be maintained or approved.

A member said it would be useful to define receiving waters.

B. Properties and receiving waterways downstream of any land-disturbing activity shall be protected from sediment deposition, erosion and damage due to changes in runoff rate of flow and hydrologic characteristics, including but not

limited to, changes in volume, velocity, frequency, duration, and peak flow rate of stormwater runoff in accordance with the minimum water quality and quantity standards set out these regulations.

A member asked for a distinction between the use of “must” and “shall.”

A member said that the changes in volume criteria may be very difficult to meet in some localities.

A member asked for clarification of urbanized areas.

It was noted that with redevelopment or with new construction, no change in the volume of runoff is almost impossible to meet.

1) Flooding and channel erosion impacts to receiving streams due to land-disturbing activities shall be measured at each point of discharge from the land disturbance and such determination shall include any runoff from the balance of the watershed which also contributes to that point of discharge.

A member questioned “at the point of discharge.” He noted that flooding and erosion occurs downstream *ad infinitum*. He suggested it should be from the point of discharge instead of at the point of discharge.

Another member agreed and said that he could not get engineers to look offsite. He questioned how far downstream an engineer could be required to go.

A member asked how the point of discharge was measured for a linear project.

A member asked what was actually being measured from each point of discharge. He asked if it was the impact on the receiving body.

Mr. Hill gave the example of a 500-acre site as part of a 1000-acre watershed. He said the runoff would be calculated from the site. Wherever the runoff leaves the site is the point of calculation. If 500 additional acres also flow through the site, that should be calculated.

A member said that would mean that any stream analysis would have to take into account the entire drainage area.

Mr. Hill said that was an existing condition in the regulations.

A member suggested the following language, “flooding and channel erosion impacts shall be evaluated taking the entire upstream watershed into account including the modifications from the planned land disturbance.”

A member asked how a watershed is determined. Is that state designated or by local area/region?

It was noted that “drainage study” should be defined for developers.

2) If stream channel erosion or localized flooding is an existing predevelopment condition then the postdevelopment conditions shall be in accordance with § 4 VAC50-60-63.

A member asked if TMDL should be addressed.

C) Stormwater management impoundment structures that are not covered by the Impounding Structure Regulations (§ 4 VAC50-20) shall be engineered for structural integrity during the 100-year storm event.

A member asked if there were problems with designing to the 100-year storm event and suggested clarification of “structural integrity.”

A member noted that requirement was in their local ordinance and it was noted that most design for that event.

A member suggested changing the word “during” to “for.”

D. Riparian buffers for all regulated land disturbing activities shall be established, or existing buffers maintained, adjacent to surface waters.

A member asked if this would require a 35 ft. buffer for all streams.

Mr. Hill said it would apply for disturbances of more than 2,500 sq. feet.

Another member asked to define the receiving body of water. He asked how this applied if a plan outside the Bay Act area called for a footprint within 35 ft. of the water. He asked if this would be an extension of the Bay Act to non-Bay localities.

A member asked what was the state definition of surface water. As defined in regulation is every pond considered surface water? He said that homeowner’s would not like the idea of having a large grassy area around ponds and lakes.

A member suggested that this would render large pieces of land useless for development.

It was suggested that this be looked at in terms of floodplain overlay districts and not applied universally.

A member suggested that it be specified that during land disturbing activities the existing buffers must be used where possible.

A member noted that the use of term surface waters was not the same use of the term as when it was used to define riparian buffer.

It was suggested that the phrase “adjacent to surface water” be removed and that riparian buffer be clearly defined.

A member asked how many localities have these regulations in place currently.

Members were asked to submit specific information regarding local programs to DCR, attention Ms. Watlington.

At this time the committee recessed for lunch.

After lunch, discussion of Part II continued.

4 VAC 50-60-56. Applicability of other laws and regulations.

A. Construction or modifications of stormwater management facilities or channels shall comply with all applicable laws and regulations.

There were no comments regarding this section.

B. Land-disturbing activities shall comply with the Virginia Erosion and Sediment Control Law (§ 10.1-560 et seq. of the Code of Virginia) and attendant regulations.

A member asked which overrules if a conflict occurs.

C. Land-disturbing activities shall comply with the Chesapeake Bay Preservation Act where applicable (§ 10.1-2100 et seq. of the Code of Virginia) and attendant regulations.

There were no comments regarding this section.

4 VAC 50-60-62. Water Quality and Quantity

A. Land disturbing activities that are converting forested land must maintain predevelopment water quality and water-quality-related runoff characteristics and

site hydrology. [IDEAL SITUATION; NEED TO PROTECT WATER QUALITY; HOW TO ACHIEVE?]

It was noted there was a need for a definition of forested land.

A member noted that MEP might apply to this section.

A member asked which types of storms or activity would apply.

It was noted that it was important to distinguish between areas where there are impaired waters.

A member noted that this was a universal statement and questioned the applicability to a single family home.

A member asked for clarification regarding permitting land disturbing activities.

A member asked if this section should be more of a goal than an absolute. The goal should be to design post development to be as close as possible to pre development.

A member said that if there are impaired waters the basic rule should be that there is no additional contribution to that impairment.

It was noted that a TMDL would have additional requirements. A TMDL stream will trump regulations.

B. Land disturbing activities on lands that are not forested must reduce existing pollutant load by 20% to improve water quality and improve water quantity-related runoff characteristics and site hydrology such that stream channel erosion and localized flooding is reduced by satisfying the following design standards for flow rate capacity and velocity requirements for natural or manmade channels associated with the land-disturbing activity;

Mr. Hill said that the intent was for this section to apply to anything not forested, both redevelopment and new development.

It was noted that pre or post construction should be specified.

A member said this cannot be done effectively on a single lot.

A member asked what the standard of 20% was replacing.

A member asked why the burden fell upon the property owner. It was noted that this would raise the cost of housing and construction activities.

A member suggested language saying that land development projects on non-forested land shall be designed to reduce existing pollutant load and to mitigate current downstream flooding and channel erosion to the MEP.

1. detain the water quality volume and to release it over 48 hours;
2. detain and release over a 24-hour period the expected rainfall volume resulting from the one year; 24-hour storm; and
3. reduce the allowable peak flow rate resulting from the 1.5, 2 and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when itw as in a good forested condition divided by the runoff volume from the site in its proposed condition. [IMPROVE LANGAUGE]

Mr. Hill noted this was in the existing law, effective July 1, 2006. He said staff realized this would be used only rarely. It was designed to address where there were no adequate channels for stormwater discharge.

A member said that when this was added to the law it was provided as an option. The committee needs to give some thought to making this the standard.

BREAK

Ms. Burtner said that the process was important and reminded members that this was the time to express concerns.

A member agreed that the process was good and said that the final product must be understandable and somewhat simple.

A member referenced a solution used by other states which include faucets for potable and non-potable water (from stormwater ponds). He noted that it was easier to put the concept forward than to implement.

A member said that it would be difficult to come to consensus as a group since the work is only scheduled through July 25.

C. Natural channel characteristics shall be preserved to the maximum extent practicable to protect water quality and quantity.

Mr. Hill said this was in the existing regulations.

A member asked how channel characteristics impact quantity.

D. Improvements in water quality maybe achieved by applying performance-based criteria or the technology-based criteria in the Virginia Stormwater Management Handbook.

There was no comment regarding this section.

E. BMPs not included in the Virginia Stormwater Management Handbook which target appropriate nonpoint source pollutants may be allowed at the discretion of the permit issuing authority provided calculations and scientific studies demonstrate pollutant reduction requirements.

A member asked if there was a state certification process currently in place.

Mr. Hill said DCR is working on a clearing-house concept to provide information.

Mr. Frye said that DCR is working through the Virginia Water Resource Center to develop the Clearinghouse Concept.

A member asked if there would be a monitoring requirement.

Staff indicated that it would be on a case by case basis, based on research.

F. In an effort to reduce degradation, additional control measures may be required on a case-by-case basis to maintain and protect water quality and quantity. Examples of this may include but are not limited to the storage of fertilizers, pesticides, herbicides and other products harmful to water quality.

A member asked if this was a requirement for MS4s.

A member suggested adding the phrase “and or to achieve” following “reduce.”

It was noted that this was part of the nutrient management plans/tributary strategy goals.

4VAC 50-60-66 Runoff Characteristics

A. For purposes of computing runoff, all pervious lands in the site shall be assumed prior to development to be in good condition (if the lands are pastures, lawns or parks), with good cover (if the lands are woods), or with conservation treatment (if the lands are cultivated); regardless of conditions existing at the time of computation.

It was noted that this raised the issue of consistency.

A member said that the grammatical structure needed clarification.

A member asked if there could be a range, nothing that engineers need to be able to make decisions within a range.

A member asked if this varied according to how it was previously used? For example, if there was poor land management previously, does this mean the water would be treated in the same manner if there was good land management.

Mr. Hill said that, depending on other sections, this may not be necessary.

B. Pre-development and post-development runoff characteristics and site hydrology shall be verified by physical surveys and calculations that are consistent with good engineering practices.

A member noted that sections A & B were inconsistent.

4 VAC 50-60-73. Frequency

The specified design storms shall be defined as either a 1.5, 2, or 10-year 24-hour storm using the rainfall distribution recommended by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS) when using NRCS methods such as TR55.

A member noted a concern about specifying a specific methodology for defining storms. TR55 does not always produce the correct number.

A member suggested using NRCS, not TR55.

A member asked what happened with the rational method.

Mr. Hill said that the group had expressed concern regarding the rational method, so it was deleted.

It was noted that the group had not reached consensus in that regard and that the discussion had been regarding the modified rational method.

4 VAC 50-60-76. Linear development projects.

Linear development projects shall control post-development stormwater runoff for flooding in accordance with a stormwater management plan or a watershed or regional stormwater management plan.

Members asked why the previous reference to local ordinance was removed.

4 VAC 50-60-83. Stormwater management impoundment structure or facilities

A. Construction of stormwater management impoundment structures or facilities within tidal or nontidal wetlands and perennial streams, shall be avoided to the maximum extent practicable. Economic hardship is not sufficient reason to grant an exception from this requirement.

A member said this was not a good use of the MEP term.

It was noted that the watershed approach may not be compatible with this.

A member said developers have to negotiate to get permits and asked what this language was intended to achieve.

Economic hardship should be defined.

B. Stormwater management impoundment structures or facilities that drain or treat water from multiple development projects or from a significant portion of a watershed may be allowed in Resource Protection Areas defined in the Chesapeake Bay Preservation Act, provided that (i) the permit issuing authority has conclusively established that the location of the facility within the Resource Protection Area is the optimum location; (ii) the size of the facility is the minimum necessary to provide flood control, stormwater water quality treatment, or both; and, (iii) the facility must be consistent with a stormwater management program that has been approved by the Board.

A member asked for clarification regarding the permit issuing authority.

C. Construction of stormwater management impoundment structures within a Federal Emergency Management Agency (FEMA) designated 100-year floodplain shall be avoided to the maximum extent practicable. When this is demonstrated to be unavoidable, all stormwater management facility construction shall be in compliance with all applicable regulations under the National Flood Insurance Program, 44 CFR Part 59.

It was noted that there are cases where installing impoundment structures will be advantageous.

Mr. Hill said the basic concept was that the first choice not be to put it in the stream if avoidable.

A member suggested that this would create an economic hardship for no sufficient reason.

D. Construction of stormwater management impoundment structures of facilities shall only occur in karst areas after a thorough geological study of the area has been conducted.

In karst areas where no features have been identified sediment traps and basins shall have impervious liners installed. Stormwater management impoundment structures or facilities or temporary erosion and sediment control measures shall be monitored for failures. Should failures to occur immediate steps to re-establish appropriate measures shall be taken.

No adverse environmental impacts shall occur to any identified karst features and no permanent stormwater management impoundment structures or facilities or temporary erosion and sediment control measures will be constructed in karst features. Discharge of stormwater directly into a karst feature shall not be permitted unless all requirements are met for class 5 injection wells.

It was noted that DCR has a karst program.

It was suggested that “discharge directly into a karst feature” be defined or taken out.

A member expressed concern about the storm requirements that must be met.

E. Safety measures shall be incorporated into the design of all stormwater management impoundment structures or facilities. These measures may include but are not limited to safety ledges, fencing, warning signs, antivortex devices, stadia rod indicating depth at the lowest point and outlet structures designed to limit public access.

A member noted that fences raise significant liability concerns and needs to be removed.

F. Stormwater management impoundment structures or facilities shall be designed to minimize the propagation of insects, particularly mosquitoes, provided that design features proposed will not negatively impact the functions of the facility.

A member expressed concern that this section needed to be removed.

It was noted that the maintenance, not the design of the facility caused the problem.

Mr. Frye said that based on citizen comments this was a real, not an imagined issue. He suggested that the issue be addressed in a handbook as a caveat or maintenance issue.

4 VAC 50-60-86. Environmentally Sensitive Design and LID

Persons responsible for land disturbing activities are encouraged to investigate the use of environmentally sensitive design and LID measures to address water quality, water quantity, runoff rate, and the frequency components of this regulation.

It was noted that based on the law this should say more than encouraged.

A member suggested a checklist for criteria.

It was noted that the fee structure may provide incentives possibly through the provision of credits.

A member noted that the incentives for developers should also include consideration for incentives for the homeowners.

It was noted that many incentives are outlined by the state, but must be provided at the local level. Incentives need to be better defined.

BREAK

4 VAC50-60-93. Stormwater Management Plan Development

A. A stormwater management plan for a regulated land disturbing activity shall apply these stormwater management criteria to the land disturbing activity as a whole. Hydrologic parameters shall reflect the total land disturbance and shall be used in all engineering calculations.

A member noted that this was not just the land disturbing activity, but the entire site.

A member asked for clarification of “as a whole.”

B. Individual lots in developments shall not be considered separate land-disturbing activities, but rather the entire development shall be considered a single land disturbing activity through a common plan of development.

A member asked what happened when single family lots were transferred from the developer. Who would be responsible?

Mr. Frye said that this was trying to look at the entire site. As individual lots are sold off the responsibility transfers to the owner.

A member suggested more specific wording to prevent a developer from saying that he had multiple lots and did not need a plan as opposed to addressing the entire development area.

C. The stormwater management plan shall include all sources of surface runoff and all sources of subsurface and groundwater flows converted to source runoff, such as sump-pump flows.

A member asked how the number would be quantified, noting that it would depend on what type of house is built on the site.

It was noted that sump pumps are not regulated.

4VAC50-60-96. Watershed stormwater management plans

A. The objective of a watershed stormwater management plan is to address the stormwater management concerns in a given watershed with optimal economy and efficiency. The result of advanced design and implementation will be a better integration of stormwater management facilities and practices with improved long-term performance in the affected watershed to address the needed water quality and quantity reductions set out in § 4VAC50-60-63. It is anticipated that the implementation of watershed stormwater management plans will not only help mitigate the impacts of new development, but should also provide for the remediation of erosion, flooding or water quality problems caused by existing development within the given watershed.

A member suggested that DCR could provide localities with a starting point working with the tributary strategies and the overall watershed plan.

B. Localities are encouraged to develop watershed stormwater management plans which address water quality and quantity on a watershed-wide basis. State and federal agencies intending to develop large tracts of land are encouraged to develop or participate in watershed plans where practicable.

A member asked what the incentive was for this.

It was suggested that it should say localities are encouraged to develop programs instead of plans.

GENERAL QUESTIONS

Ms. Burtner noted that additional comments should be forwarded to Ms. Watlington by 5:00 p.m. on May 24. She offered the following questions for member comment:

Is there anything missing?

Are we on the right track?

Is there enough detail or too much?

Are there potential conflicts between sections?

Did you note anything missing?

Are we on the right track on how we are approaching?

A member asked if it might be better to take a more simplistic approach.

Water reuse should be explored.

A member noted a concern that the further the process moves from the construction permit aspect and the more time spent on stormwater regulations that the process would be too big and complex to address in the allotted time.

A member said that it was not clear that the difference between general development, redevelopment and post development have been defined.

A member asked if MS19 would be eliminated.

A member noted it was difficult to react to the specifics on the day they were received.

Ms. Burtner asked if DCR needed any more information or questions to proceed.

Mr. Dowling said that staff would take a look at what was presented and the comments. Additional guidance from the TAC is welcomed.

Ms. Burtner encouraged members to begin thinking about Part 3. Mr. Dowling again said that specific language and comments would be welcome.

The next meeting will be June 8, 2006 in the Richmond area.

Mr. Frye thanked everyone for their participation. The meeting was adjourned.