

**SPECIAL STORMWATER CRITERIA TASK GROUP**

*Special Stormwater Criteria (SSC)  
in James City County, Virginia*

**Final Draft  
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## *Special Stormwater Criteria (SSC) in James City County, Virginia*

### *Introduction:*

*Special Stormwater Criteria (SSC)* was developed as a result of goals and priorities as established by watershed management plans in James City County and following a year long process involving a multi-disciplined stormwater task group. Objectives of *Special Stormwater Criteria (SSC)* include:

- Protection of specific stream reaches from accelerated channel erosion;
- Protection of conservation areas from the impacts of stormwater runoff;
- Protection of high quality wetlands from the effects of altered water level fluctuation;
- Developing more effective criteria and locations for stormwater practices in watersheds for new development;
- Retrofitting of existing facilities and uncontrolled areas of the watershed to improve water quality;

*Special Stormwater Criteria (SSC)* were developed to achieve two primary goals. The first is to preserve pre-development hydrology to reduce impacts to high quality streams. The volume of recharge that occurs on a site depends on slope, soil type, vegetative cover, precipitation and evapo-transpiration. Sites with natural ground cover, such as forests and meadows, have higher recharge rates, less runoff and greater transpiration losses under most conditions. This helps to preserve existing water table elevations thereby maintaining the hydrology of streams and wetlands during dry weather. Because development reduces natural cover and increases impervious surfaces, a net decrease in recharge rates is inevitable.

The second primary goal of *Special Stormwater Criteria (SSC)* is to provide enhanced water quality treatment of stormwater runoff. Current (traditional) stormwater management for water quality in watersheds is characterized by the use of a single structural BMP practice, namely a wet or dry pond, to manage stormwater from a contributing drainage area. However, many of these practices have not been properly maintained, reducing their pollutant removal capability. In addition, although the County's codes and ordinances allow for reduced impervious cover and open space preservation in site design, it does not appear that developers consistently exercise those options. More sensitive site design can play a significant role in reducing water quality and hydrologic impacts resulting from development.

In general, *Special Stormwater Criteria (SSC)* are considered to be one step above and beyond traditional County stormwater management criteria, focusing more on the aspects of site design and source control - as opposed to traditional stormwater treatment at the end of stormwater drainage collection and conveyance systems. Use of *Special Stormwater Criteria (SSC)* on a proposed development site does not remove the need to provide traditional stormwater quality treatment and quality control in accordance with current County Chesapeake Bay Preservation and Erosion and Sediment Control ordinances, the County BMP manual, and the Virginia Erosion and Sediment Control and Stormwater Management Handbooks. The use of additional measures in the drainage basin beyond traditional methods may, however, subsequently affect post-development site hydrology and reduce the peak rate and volume of runoff, thereby perhaps reducing the size or storage volume requirements of traditional end-of-pipe detention or retention facilities.

### **When is Special Stormwater Criteria (SSC) Applied?**

*Special Stormwater Criteria (SSC)* are applied to plans of development under the following three (3) situations.

**SSC Type 1 Watershed Management Plans.** Special Stormwater Criteria designation is placed on a development project, in whole or part, due to the site being situated in a defined *Special Stormwater Criteria (SSC)* area consistent with an approved watershed management plan in James City County. Approved watershed management plan means the plan has been approved by the Board of Supervisors. Examples include the Powhatan Creek and Yarmouth Creek watershed management plans. The term watershed management plans also includes any associated subwatershed or catchment maps and/or specific subwatershed or catchment strategies in narrative portions of the plan or special studies.

**SSC Type 2 Variance Process.** Special stormwater criteria designation is placed on a development project, in whole or part, as part of a mitigation or compensatory condition placed on the project as a result of the granting of a waiver or exception to the County's Chesapeake Bay Preservation or Erosion and Sediment Control ordinances. For example, Special Stormwater Criteria (SSC) designation may be applied to a development site, in whole or part, as a result of an administrative or Chesapeake Bay Board approval to impact Resource Protection Area (RPA) or as a result of administrative approval to impact steep slopes or to vary from established minimum standards & specifications as outlined in the County BMP manual, the Virginia Erosion and Sediment Control Handbook and/or the Virginia Stormwater Management Handbook.

*Special Stormwater Criteria (SSC)* may apply to the site, in whole or part, depending on the location of the site under the Type 1 criteria or as identified by the plan-approving authority under Type 2 criteria. Specific design and construction plan information and details for *Special Stormwater Criteria (SSC)* must be presented for review during submission of the plan of development for the project. For rezoning, special use permit and concept or master plan purposes, detailed design is not necessary. For these instances, the applicant needs only to identify if it is believed that *Special Stormwater Criteria (SSC)* will apply to the site in whole or part.

### **How is Special Stormwater Criteria (SSC) Applied?**

#### **Step 1 – Watershed Management Plan (Type 1) Determination:**

Utilize developed project site mapping in conjunction with available County mapping to identify if the proposed development site is situated in whole or part in a defined *Special Stormwater Criteria (SSC)* area in accordance with any County approved watershed management plans. If no, proceed to Step 2. If yes, proceed to Step 3.

#### **Step 2 - Variance (Type 2) Determination:**

Determine if a waiver or exception is required to the County's Chesapeake Bay Preservation or Erosion and Sediment Control ordinances or if a variance is required to the County BMP manual, VESCH or VSMH for the project and if the possibility exists for *Special Stormwater Criteria (SSC)* to be applied to the site, in whole or part, by the plan-approving authority as a condition, mitigation or compensation measure for those requests. If yes, proceed to Step 3. If no, *Special Stormwater Criteria (SSC)* does not apply to the proposed development site.

### **Step 3 - Soils Inventory:**

At this point, the user has the option to proceed directly to Step 6, if desired. However, as one of the primary goals of *Special Stormwater Criteria (SSC)* is to save existing Hydrologic Soil Group A & B soils on the site to the greatest extent possible and as all plan of development projects require an environmental inventory and soils map to meet Chesapeake Bay Preservation and erosion and sediment control plan requirements, it is encouraged that this step not be bypassed but included in the *Special Stormwater Criteria (SSC)* process.

Using the Environmental Inventory and soils map as compiled for the project, identify Hydrologic Soil Group (HSG) soil mapping units contained within the anticipated limits of work for the project. The limits of work is defined as the ultimate limit of impact for the project due to clearing, land-disturbing and site development activities including offsite utility connections and installation of temporary erosion and sediment control measures. Hydrologic soil mapping units shall be based on the latest edition of the *Soil Survey of James City and York Counties and the City of Williamsburg* as published by the United States Department of Agriculture, Soil Conservation Service. Hydrologic soil group A and B soils are defined as soils having high infiltration rates even when thoroughly wetted (low runoff potential) and soils having moderate infiltration rates when thoroughly wetted, respectively. After the Hydrologic Soil Group inventory is completed, proceed to Step 4.

### **Step 4 - HSG A&B Soil Group Determination:**

If there is a substantial amount of defined Hydrologic Soil Group (HSG) A & B soil mapping units within (inclusive to) the defined limits of work for the project, proceed to Step 5. A substantial amount is regarded as at least 10,000 square feet or more or greater than about 2 percent of the total site area, whichever is greater. If there are no Hydrologic Soil Group (HSG) A & B soils, or minor amounts or isolated pockets of HSG A& B soils (generally less than about 5,000 square feet) within the defined limits of work for the project, proceed to Step 6.

### **Step 5 - Saving HSG A&B Soils:**

If all defined Hydrologic Soil Group (HSG) A & B soils as identified in Steps 3 and 4 and within the defined limits of work are saved, then *Special Stormwater Criteria (SSC)* has been satisfied. The intent to preserve predevelopment infiltration and recharge characteristics of the site is maintained. Do not proceed any further. Saved is defined as sufficiently maintaining the natural recharge capabilities of the soil compared to predevelopment conditions and there are no direct impacts to HSG A&B soil mapping units due to clearing, land-disturbing or site development activities. If any Hydrologic Soil Group A & B mapping units are directly impacted in any manner whatsoever due to clearing, land-disturbing or site development activities, then proceed to Step 6.

### **Step 6 – Apply Special Stormwater Criteria (SSC) Measures**

Apply *Special Stormwater Criteria (SSC)* measures to the project site in accordance with the matrix shown in Table SSC-1 and the Menu of Practices shown in Table SSC-2. Measures must be fully applied to the site development project or as part of the stormwater management plan for the site in accordance with the references indicated or in accordance with other accepted principles and practices. If the references are not utilized, documented evidence of other established planning, design and construction principles and practices may be required.

No more than two (2) of the same SSCP measures can be selected to meet SSC criteria. SSC credit cannot be taken for those measures being performed to meet traditional (ie. 10 point system) stormwater management criteria.

<b>Table SSC-1: Special Stormwater Criteria Application Matrix</b>		
<i>Designation</i>	<i>Site or Section Area</i>	<i>Measures</i>
Redevelopment	Any Size	1 unit measure from the SSCP Menu
New Development Projects		
SSC Class 1	2,500 square feet to 10,000 square feet	1 unit measure from the SSCP Menu
SSC Class 2	10,000 square feet to 1 acre	2 unit measures from the SSCP Menu
SSC Class 3	1 to 10 acres	3 unit measures from the SSCP Menu
SSC Class 4	10 to 50 acres	5 unit measures from the SSCP Menu
SSC Class 5	50 to 200 acres	7 unit measures from the SSCP Menu
SSC Class 6	200 acres or more	Contact Plan-Approving Authority for Pre-Application Meeting and determination.

SSCP means Special Stormwater Criteria (SSC) Practice.

<b>Table SSC-2: Menu of Special Stormwater Criteria Practices (SSCP's)</b>				
<i>Type</i>	<i>Unit</i>	<i>Description</i>	<i>Restrictions/Limitations</i>	<i>Reference Standards</i>
<b>Saving HSG A&amp;B Soils</b>				
SSCP # 1	1/2 unit	Save HSG A&B Soils to the Greatest Extent Possible	½ unit for each 25% of HSG A&B soils from Steps 3 and 4 saved.	None
<b>Limit Impervious Cover</b>				
SSCP # 2	1 unit	Use of pervious pavers	1,000 sf minimum size, must infiltrate runoff,	7
SSCP # 3	1 unit	Shared parking	Legal shared parking agreement in place; meets Planning requirements	9
<b>On-Site Design Principles</b>				
SSCP # 4	1 unit	Disconnection of impervious areas	Applied site-wide, all downspout locations	1, 5, 6
SSCP # 5	1 unit	Increasing time of concentration flow paths	Applied site-wide	5
SSCP # 6	1 unit	Increase surface roughness “n”	Applied site-wide	5
SSCP # 7	1 unit	Maintain sheet flows	Applied site-wide	5
SSCP # 8	1 unit	Limit use of underground storm drain piping	Applied site-wide	2, 5

<b>Offsite Design Practices</b>				
SSCP # 9	2 units	Retrofit a ranked priority offsite BMP	Per approved watershed management plans	1, 2, 3, 11
SSCP # 10	3 units	Construct offsite BMP in a previously "Uncontrolled Area"	easements	1, 2, 3
SSCP # 11	T.B.N.	Improve an offsite BMP	Not per an approved WMP; not part of a traditional SWM plan; permission required; BMP size must be considered in assigning unit value.	1, 2, 3
<b>Structural Practices</b>				
SSCP # 12	1 unit	Bioretention basin	650 square ft. minimum size	1, 3, 4, 5, 6
SSCP # 13	1 unit	Dry swales	250 l.f. minimum	1, 3
SSCP # 14	½ unit	Sumped or bottomless inlets	Applied at structures near to BMPs	13
SSCP # 15	1 unit	Manufactured BMP systems	Ultra-urban areas, water quality, manufacturers specs., preapproval	3, 7
SSCP # 16	1 unit	Infiltration trenches/pits	Minimum Size 100 sf, minimum drainage area ¼ acre	1, 3
SSCP # 17	1 unit	Dry wells	Applied site-wide, all major downspouts	1, 3, 5
SSCP # 18	1 unit	Permanent check dams in swales (wet swales)	Applied site-wide, durable materials	1, 5
SSCP # 19	1 unit	Level spreaders	Applied site-wide, incidental outfalls	2, 5
SSCP # 20	1 unit	Enhanced outlet protection measures at pipe & channel outfalls	Applied site-wide, all major storm pipe outfalls, 12" diameter or greater	2
SSCP # 21	1 unit	Flat, large bottom width swales	Applied site-wide, applies to VESCH 3.17 stormwater conveyance channels	1, 2, 3, 5
SSCP # 22	1 unit	Alternative measures – emerging technology	Preliminary Approval Required by the Plan-Approving Authority	7
<b>Non-Structural Practices</b>				
SSCP # 23	1 unit	Filter/buffer strips	Applied site-wide	5
SSCP # 24	1 unit	Get an Inspection/Maintenance Agreement for a BMP which does not have one.	Responsible parties; recorded per County process requirements	12

<b>Slope / Grading Practices</b>				
SSCP # 25	1 unit	Enhanced slope stabilization practices on all graded cut-fill slopes	Applied site-wide, over 6 ft. height; 1,000 s.f. minimum; non-degradable	2, 7
SSCP # 26	1 unit	Use of flatter site grades	Applied site-wide, not into steep slope or RPA buffer	5
SSCP # 27	1 unit	Reduced fill slope heights	Applied site-wide	5
SSCP # 28	1 unit	Enhanced channel stabilization practices within stormwater conveyance channels	Applied site-wide, all major conveyance channels; non-degradable	2, 7
<b>On-Lot Stormwater Management Practices</b>				
SSCP # 29	1 unit	Rain barrels/cisterns	Applied site-wide, covenants	5, 7
SSCP # 30	1 unit	On-lot rain gardens	Applied site-wide, covenants	5
SSCP # 31	2 units	Green roofs	Per Building Codes	5, 10
<b>Enhancement of Traditional Onsite BMPs</b>				
SSCP # 32	½ unit per BMP	Increased pond buffer	15 feet minimum expansion width	1, 3, 8
SSCP # 33	½ unit	Enhanced shoreline erosion control, landscaping and stabilization	Full shoreline perimeter	1, 3
<b>Stream Restoration</b>				
SSCP # 34	T.B.N.	Bioengineering stream bank stabilization	T.B.N.	2
SSCP # 35	T.B.N.	Structural stream bank stabilization	T.B.N.	2
SSCP # 36	T.B.N.	Stream bank stabilization of ranked priority stream	T.B.N.	2, 11
<b>Other</b>				
SSCP # 37	T.B.N.	All recommended WMP subwatershed or catchment strategies are applied to the site	Per approved watershed management plans. If no strategies, no unit credit can be taken.	All
SSCP # 38	½ unit	“Weighted Points over 10” for traditional SWM, 10 point system	½ unit per every 1 point over 10 (ie. 10-point system)	1
SSCP # 39	½ unit	Provide asbuilt drawings for entire storm drainage system	All culverts, storm drainage pipes and stormwater conveyance channels	14

### **Table Notes:**

- SSCP means Special Stormwater Criteria (SSC) Practice.
- No more than two (2) of the same SSCP measures can be selected to meet SSC criteria.
- SSC credit cannot be taken for those measures being performed to meet traditional (ie. 10 point system) stormwater management criteria.
- Applied site-wide means to apply across the site to the greatest extent possible.
- WMP means watershed management plan.
- T.B.N. means to-be-negotiated on a case-by-case basis with the plan-approving authority.
- Number of Measures required from the Table SSC-1 application matrix and units, restrictions/limitations and reference standards from Table SSC-2 menu may be adjusted by plan-approving authority on a case-by-case basis.

### **Reference Standards:**

1. County BMP Manual
2. Virginia Erosion & Sediment Control Handbook
3. Virginia Stormwater Management Handbook
4. Prince George's County Maryland, Bioretention Design Manual
5. Low Impact Development Design Strategies, An Integrated Design Approach
6. Low Impact Development Hydrologic Analyses
7. Manufacturer's Recommendations
8. County Stormwater Management Program
9. Zoning ordinance
10. Applicable building codes
11. Approved County watershed management plans
12. County Land Disturbing permit application procedures
13. City of Virginia Beach or other appropriate sump inlet standards
14. James City County Environmental Division, Stormwater Management/BMP Facilities, Record Drawing and Construction Certification, Standard Forms & Instructions

### **Future Considerations**

During the course of the proceedings for the Special Stormwater Criteria Task Group, many good ideas were identified for incorporation into *Special Stormwater Criteria (SSC)*; however, some were considered to be outside the stormwater management program area. Although not directly applied in the subsequent *Special Stormwater Criteria (SSC)* procedure, they were considered to be important principles to consider and apply but were generally beyond the ability for the task group to change. Many of the issues discussed were closely related to the Builders-for-the-Bay, Better Site Design Roundtable which was being held concurrently with the Special Stormwater Criteria Task Group or were regulated by other County ordinances and processes. The guiding principles, as offered below, were established by the Special Stormwater Task Group. These principles should be considered by decision makers and plan-approving authorities when reviewing changes to current policies and procedures and for the development community to consider when developing a site.

- Support of the consensus agreement to be prepared by the Builders-for-the-Bay in the Better Site Design Roundtable for James City County.
- Sustainability of original designs – ensuring proper maintenance is performed for all stormwater management facilities.
- Support of the preparation of illicit discharge ordinance and the use of stormwater pollution prevention control plans to control and reduce the risk of spills from areas which store materials that may be harmful to surface and groundwater sources.
- Consideration for establishment of a program to buy or sell stormwater credits under the traditional or *Special Stormwater Criteria (SSC)* program areas and to allow credit for stream restoration projects.
- Evaluation of the traditional County 10-point BMP system including consideration for giving extra credit for BMP enhancements above minimum standards, establishing a procedure for allowing BMPs in series; and assigning greater point values for infiltration/recharge and biofilter type BMPs.
- Develop watershed basin and sub-basin models to determine nutrient export and recharge targets.