November 8, 2012

Mr. Brian Van Wye,
District Department of the Environment
1200 First Street, N.E., 6th Floor
Washington, DC 20002

Via email: brian.vanwye@dc.gov

Re: District of Columbia Stormwater Management Regulation

Dear Mr. Van Wye:

Thank you for the opportunity to comment on the proposed District of Columbia stormwater management regulation.

As Executive Director of the Anacostia Watershed Restoration Partnership, I have two main duties: to help coordinate the restoration of the Anacostia watershed across a number of federal, state and local jurisdictions and organizations, and to advocate for its restoration. Today I submit these comments in the role of advocate. As such, these views are my own and I am not speaking on behalf of the Partnership's members.

Congratulations to DDOE on the very professional job the Department did in crafting a complete and polished proposed regulation and guidebook.

Congratulations are also in order to DDOE for recognizing the importance of retention of significant storm events as being the key to protection and restoration of the District's water bodies. The District is mandated by EPA's Clean Water Act permit to incorporate retention of 1.2 inches in these regulations, but there is another good reason for this approach—it is consistent with the current science on the management of stormwater. A brief discussion of the science describing why retention works (and detention doesn't) is included in an Appendix to these comments and these comments incorporate by reference the information and scientific references on the efficacy and benefits of retention that can be found in EPA's District of Columbia MS4 Final Permit Fact Sheet dated October 7, 2011 located at: http://www.epa.gov/reg3wapd/npdes/dcpermits.htm. In order to clean and restore the District's rivers and streams, there is simply no alternative but to start better managing the billions of gallons of dirty and destructive stormwater from that rush into them immediately after every storm. After Superstorm Sandy, it is even more apparent that retention to mitigate localized flooding of homes and businesses will also be more and more useful in the future.

Further, the District's neighbors are working to properly manage stormwater. Notably, Montgomery County now requires all development and redevelopment to retain 2.6 inches of stormwater to the maximum extent practicable, and we are seeing the benefits of that requirement spring up there. One of the most impressive examples is the new Discovery Center in Silver Spring, Maryland. This facility includes both a green roof and water storage that provides irrigation water for the development. This highly urban redevelopment project controls

90% of the channel protection volume onsite. The public park on the green roof is attractive and well-used. If the District wants its upstream neighbors to continue to work to restore rivers and streams, the District must continue to "step up" as well, as it is doing with this proposed regulation. If it does not, the District may lose out as companies will prefer to relocate near and in beautiful green redevelopments in other jurisdictions.

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By requiring developers to retain stormwater onsite (or addressing it through one of the flexible mechanisms that the regulation provides), DDOE is addressing a fundamental problem of environmental injustice. Over time, throughout the Anacostia watershed and not only in the District, developers and redevelopers have shunted polluted runoff from development sites and into stormwater systems that discharge directly into the nearest stream or river. While we all benefited from this development and redevelopment, we now understand the effects of not properly managing stormwater. All of us, but especially the people who live near the river, have lost the economic, recreational, and aesthetic benefits of a healthy and clean river. Not only does the Clean Water Act require that the District of Columbia implement a regulation that is effective at providing healthy and clean rivers to everyone, but the Civil Rights Act, providing for equal protection under the law, requires it as well.

DDOE must also be congratulated on the creative and innovative "Stormwater Retention Credit" (SRC) approach incorporated into the regulation. Giving appropriate flexibility to developers and redevelopers is important because the goal is the clean up and restoration of the District's degraded rivers and streams, and not "red tape" or unnecessary development costs. Setting a strong standard and allowing developers and redevelopers flexibility on how they will meet it also encourages creativity and innovation, and implementation at the lowest cost.

However, there are a number of areas were flexibility that has been that threaten to make the regulation ineffective. Examples of these flexibilities, and why these are cause for concern, follow:

- The regulations exempt projects in the public right of way from obtaining SRCs or paying the fee in lieu. The preamble to the rule gives no rationale for this other than the "multitude of unique site constraints" associated with public right of ways. But this rationale argues for allowing DDOT to focus on offsite measures through SRCs and payment in lieu and is not persuasive as to why these offsite solutions wouldn't work equally well for roadways as for development and redevelopment. This concern is especially serious given that roadways constitute 25 percent of the impervious surfaces in the District and contribute so much stormwater to the District's rivers and streams. If DDOT does not want to purchase SRCs or make in lieu payments, then an additional offsite flexibility that could be provided to it is that it could be allowed to retrofit other District properties: buildings, public schools and libraries, impervious surfaces in parking lots at District parks, etc.

  DDOE should evaluate what percentage of the cost of road reconstruction projects would be devoted to stormwater controls including offsite mitigation, similar to the analysis that it conducted for development and redevelopment. If, as with development and redevelopment projects, it is a fraction of one percent or even one or two percent, then it

would seem logical to apply SRCs and in lieu payments to right of way projects, to the extent that the stormwater from these projects cannot be addressed onsite.

- The regulations allow SRCs that were created as early as May 1, 2009 to be used by developers as credits against new development and redevelopment. There is no rationale given for the decision to depart from what would seem to a fair and reasonable approach: new development and redevelopment should be required to be mitigated with new SRCs.

- The regulations allow developers flexibility in that the SRCs (and for that matter, projects implemented by DDOE with "in lieu" fees) to be implemented anywhere in the District and not in the same watershed as the development or redevelopment they mitigate. Since it is understandable that DDOE cannot predict whether severely polluted watersheds like the Anacostia will benefit from this approach, it is suggested that DDOE establish a policy that if this flexibility should result in excessive stormwater volumes that are not addressed in a particular watershed, that it will use the in lieu fees to address the inequity.

- Finally, providing for a "fee in lieu" under which developers and redevelopers may pay for the District of Columbia to provide the necessary retention provides them with flexibility. However, the per gallon in lieu fee appears to be dramatically lower than what it will take to provide a gallon of retention. In particular, it should be noted that DDOE will need adequate personnel to implement thousands of stormwater management practices. Further, DDOE will be required to maintain these practices. Additionally, land prices in the District are steadily rising. This regulation should establish the amount per gallon fee so that it covers the cost of implementing a gallon of retention for each gallon generated by development and redevelopment and should allow DDOE to administratively raise the fee over time to cover rising costs associated with providing the retention. DDOE has not provided information describing how it derived its proposed per gallon fee or shown that the fee will be adequate. DDOE should provide this information to the public and interested parties so that they can help DDOE with its evaluation.

Thank you very much for the opportunity to comment.

Sincerely,

Dana Dunmire Minerva
Executive Director
Anacostia Watershed Restoration Partnership.

Reducing Destructive Volumes of Water, and Not Just Peak Flow, is the Best Approach for Both Restoration and Protection of Stream Banks and Pollutant Reductions

There is a growing body of scientific evidence that indicates that "retention" or "runoff reduction" using Environmental Site Design is the best kind of water quality treatment, reducing a greater mass of pollutants. Environmental Site Design is also better at mimicking natural hydrology and helps protect and restore the physical structure of streams and rivers by infiltrating stormwater into the ground rather than allowing large volumes to flow into the streams and rivers, eroding their banks and destroying their habitats.

The draft report of the Chesapeake Bay Program's Stormwater Working Group concluded that runoff reduction measures achieve higher pollutant reductions than treatment (detention) practices. A study of a project called the Jordan Cove Subdivision is extremely significant. The National Research Council's Report on stormwater called this subdivision one of the most extensively studied in the United States. Jordan Cove is a subdivision that has both detention practices and Environmental Site Design (ESD) practices. The National Research Council found that while concentrations of pollutants discharged from the ESD portion of the subdivision were higher, the mass of pollutants discharged was *dramatically* lower, because of the greatly decreased volumes.[1] This study and others find that ESD reduces pollutants more effectively than detention practices.[2]

The National Research Council's report on stormwater, the scientific articles relied on in it support the concept of using ESD to reduce stormwater volumes. That report, and EPA's interpretations of also indicate that detention is now perceived by scientists to be an obsolete practice, to be used only in those rare circumstances when no other practices can be implemented Detention practices do not protect water quality and certainly do not protect the biological integrity of our rivers and streams. The reasons are many:

- Detention does not reduce the overall volume of polluted runoff, which as noted above, means that it does not reduce as great a mass of pollutants.[3]

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[1] Committee on Reducing Stormwater Discharge Contributions to Water Pollution, National Research Council, *Urban Stormwater Management in the United States* (2008), pp. 396-8.

[2] In particular, see the discussion and the many studies cited in the Fact Sheet for EPA Region 3's District of Columbia (DC) Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Final Permit, October 7, 2011, that stand for the proposition that ESD reduces larger amounts of pollutants than detention at http://www.epa.gov/reg3wapd/npdes/dcpermits.htm. The most important discussion of this issue starts on page 9.

[3] National Research Council, p. 33: "Mitigation of urban-induced flow increases have followed this narrow approach, typically by endeavoring to reduce peak discharge by use of detention ponds but leaving the underlying increase in runoff volumes—and the associated augmentation of both frequency and duration of high discharges—untouched. This partly explains why evaluation of downstream conditions commonly document little improvement resulting from traditional flow- mitigation measures (e.g., Maxted and Shaver, 1997; Roesner et al., 2001; May and Horner, 2002)."

- Detention may delay the peak flow from a particular site but in combination with the polluted runoff from detention systems across the watershed, the impacts of the volume are merely delayed and not mitigated.[4]

- Detention practices are often designed and constructed on an "ad hoc" or "site by site", basis without analysis of the appropriateness of the practice in light of the conditions in the watershed.[5]

- Concentrations of pollutants leaving detention ponds may be reduced but the volume of the stormwater flows leaving them keeps pollutant discharges high, and

- Detention does not protect downstream channels from the erosive effects of stormwater volume which mobilizes sediments and destroys biota.[6]

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[4] USEPA, Guidance for Federal Land Management in the Chesapeake Bay Watershed, Chapter 3 Urban and Suburban (EPA841-R-10-002), May 12, 2010 p. 3-17: "Simply reducing the peak flow rate, and extending the duration of the predevelopment peak flow, is not effective because as the different discharge sources enter a stream, the hydrographs are additive, and the extended predevelopment peak flows combine to produce an overall higher than natural peak. The result is the pervasive condition of channel incising, erosion, and loss of natural stream biological and chemical function as observed in Figure 3-8."

National Research Council, p. 341: "Detention basins can control peak flows directly below the point of discharge and at the property boundary. However, when designed on a site-by-site basis without taking other basins into account, they can lead to downstream flooding problems because volume is not reduced (McCuen, 1979; Ferguson, 1991; Traver and Chadderton, 1992; EPA, 2005d). In addition, out of concerns for clogging, openings in the outlet structure of most basins are generally too large to hold back flows from smaller, more frequent storms. . . . Because of the limitations of on-site detention, infiltration of urban runoff to control its volume has become a recent goal of stormwater management."

[5] National Research Council, p. 457. "Past practices of designing detention basins on a site-by-site basis have been ineffective at protecting water quality in receiving waters and only partially effective in meeting flood control requirements."

[6]EPA, p. 3-17: "Detention systems generate greater flow volumes for extended periods. Those prolonged, higher discharge rates can undermine the stability of the stream channel and induce erosion, channel incision and bank cutting."

National Research Council, p. 372: "It should be noted that there are important, although indirect, water quality benefits of all runoff-volume-reduction SCMs—(1) the reduction in runoff will reduce streambank erosion downstream and the concomitant increases in sediment load, and (2) volume reductions lead to pollutant load reductions, even if pollutant concentrations in stormwater are not decreased." See also the original paper on the Jordan Cove Subdivision: Dietz, M. E., and Clausen, J. C. 2008. Stormwater Runoff and Export Changes with Development in a Traditional and Low Impact Subdivision, Journal *of Environmental Management* 87(4):560-566. This study concluded that a subdivision with LID controls controlled nitrogen and phosphorus as well as forested land in large part because of the volume of runoff that was controlled.

See also: Emerson, C. H., C. Welty, and R. Traver. 2005. Watershed-scale evaluation of a system of storm water detention basins. *Journal of Hydrologic Engineering* 10(3):237-242. ("This paper has quantitatively demonstrated that the stormwater management method of peak flow rate control now

widely implemented is flawed when viewed in terms of the impacts on the main receiving water body of a watershed. This result points to the need for fundamental reevaluation of the basis for stormwater management if the goal is protecting natural resources on the watershed scale. Modeling results indicated that the volume-control approach shows promise for attaining this goal . . . " p. 241.)

Ferguson, B. K. 1991. The Failure of Detention and the Future of Stormwater Design. *Landscape Architecture* 81(12):76-79.

Maxted, J. R., and E. Shaver. 1997. The use of retention basins to mitigate stormwater impacts on aquatic life. Pp. 494-512 in: *Effects of Watershed Development and Management on Aquatic Ecosystems.* L. A. Roesner (Ed.). New York: American Society of Civil Engineers. (Study of the areas downstream of eight stormwater ponds showed that the ponds were no better than no controls in terms of protecting downstream aquatic life.)

McCuen, R. H. 1979. Downstream effects of stormwater management basins. *Journal of the Hydraulics Division* 105(11):1343-1356. ("If stormwater management is to be effective, stormwater management basins are going to have to be complemented with other stormwater management measures that more closely duplicate the storage characteristics of the predevelopment land use conditions. For example, grass-lined swales, rooftop detention, and porous pavement are stormwater management measures that provide storage that is more spatially representative of natural storage and more closely approximates the temporal distribution of storage depletion that existed prior to development." P. 1356.)