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Sacramento, CA 95818  
June 23, 2008

Kim Schwab  
California Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Drive #200  
Rancho Cordova, CA 95670-6114

Subject: Comments on the Tentative Order for the Sacramento Area MS-4 Permit

Dear Ms. Schwab:

These comments constitute recommendations for changes to the Tentative Order (the Order) for renewal of the Sacramento area NPDES Municipal Storm Water Permit (the MS-4 permit) so that it might lead to greater clarity and consistency to address the hydrogeomorphic impacts of future projects in the developing rural watersheds of Sacramento County and its municipalities. I submit them as a private citizen and as a scientist with approximately 25 years experience in the realm of stream ecology, water quality monitoring, bioassessment, and watershed and stormwater management. Although I manage the Upper Laguna Creek Collaborative Planning Process (ULCC), I cannot speak for this multi-interest collaboration. Thus my comments should not be construed to reflect those of its participants.

For the past 10 years I have been working to move Sacramento County and its municipalities toward stormwater management policies and standards that effectively address the significant impacts on creeks from changes in stream flows resulting from development of rural watersheds. Among national scientific and academic communities there is broad consensus that very significant impacts to the physical and biological integrity of streams results when the imperviousness of a watershed increases by as little as 10 percent. Sufficient knowledge exists on which to provide basic standards of performance, which are lacking in this Order. I am concerned that the lack of specific expectations for the Hydromodification Management Plan and other development plans will lead to a lack of clarity and efficacy when identifying, analyzing and monitoring various management options.

#### **Development Standards Pages 19 and 20**

This section should incorporate technical details that better reflect the current state of understanding of the science of hydromodification (hydromod), as this can provide clearer expectations for the Permittees to build their Hydromodification Management Plan (HMP) (referenced on page 48).

#### **Planning and New Development Program Pages 46-49**

Comments:

- The current Stormwater Quality Design Manual referenced on page 47 and 48 is not adequate to address hydromodification. It promotes LID in the same way these BMPS

are promoted in the Order: loosely and with no performance criteria that links them to any actual benefit or impact on the receiving waters. Significant modifications to this manual will be necessary to ensure the efficacy of BMPs to achieve in-stream objectives that actually protect streams. Otherwise the permit is apt to encourage development standards that promote BMPs that look and cost like they should do something but can provide no evidence or assurances that they can maintain the pre-development hydrograph.

- It is critical that the Order require that the BMPs approved for any given project be able to demonstrate that they meet a simple performance standard: Maintain (or reproduce) the pre-development hydrology with respect to flow volume, frequency and duration. Contrary to the statements made on page 48, to date this standard has not been demonstrated to have been met on any large scale development with any LID methods other than flow duration control BMPs. Therefore, rather than requiring the Permittees to promote the listed LID methods (as defined as those used successfully in other places), the Order should instead require the Permittees to condition projects to use any combination of techniques that can demonstrate the capacity to achieve the requisite control.
- The 6-month period allocated to revise the Stormwater Quality Design Manual (Page 48, under 15.b.i.) seems to be much too short, given that the deadline will occur prior to development of the Permittees HMP. Please consider allowing the Permittees 12 months to make improvements to the manual while they work on the HMP.
- The references to LID Page 48, Hydromodification Management Plan (HMP): Studies show that LID alone does not mimic the natural hydrology. In-stream standards are needed to determine if any BMPs will be effective. LID is unlikely to work unless flow control duration is included among the mix of BMPs. This fact should be pointed out in the document. As is, the proposed requirement that projects “minimize” the amount of impervious surface would require developers to leave on the order of 20% of each catchment area for LID. LID alone requires substantial area to be left undeveloped, which would undoubtedly be deemed “unpracticable.”
- As written there are no guidelines or performance criteria included in this requirement on which the Permittees should develop an HMP. To reflect the current scientific understanding of hydromod, the Order should provide some criteria or guidelines to define what the HMP must include. Given the experience with other permits and amount of scientific scrutiny that hydromod has undergone, at a minimum the following concepts should be incorporated into the HMP requirements.
  - Prior to plan approval, Permittees shall condition all projects to implement stormwater management BMPs that avoid increases in the erosive force of flows beyond a specific range of conditions needed to maintain current stream geomorphology. This range of conditions should be calculated for each receiving water (whenever possible) or defer to a conservative estimate such as Erosion Potential ( $E_p$ ) equal to 1 plus or minus 10%.

- Require management of all geomorphically significant flows commonly defined as the range of flows from the critical flow for erosion and/or bed mobility up to and including the 10-year peak flow.

Thank you for the opportunity to comment on the Tentative Order.

Truly yours,

original signed by

Eva S. Butler