



## MEMORANDUM

January 6, 2008

TO: All Clients and Colleagues

FROM: Doug Herring

SUBJECT: **Update on NPDES Municipal Stormwater Permits Provision C.3 Stormwater Requirements of the California Regional Water Quality Controls Boards**

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### **Hydrograph Modification Requirements**

#### **Introduction**

In February 2003 the San Francisco Bay Regional Water Quality Control Board (RWQCB) added Provision C.3 to the National Pollutant Discharge Elimination System (NPDES) stormwater permits issued to the municipalities under its jurisdiction. See my memo to DHA clients and colleagues dated June 13, 2005 for a detailed summary of the on-site stormwater treatment requirements of Provision C.3, which provides background to this memo. The Provision C.3 requirements were phased in between 2004 and 2006 in the San Francisco Bay Area. Most NPDES Municipal Stormwater permits issued by the RWQCB were issued as countywide permits that included the cities, towns, water districts, and flood control districts in the county, as well as the unincorporated areas. Effective dates of the requirements varied from permit to permit.

Additional requirements for Hydrograph Modification Management (controls on peak stormwater runoff rates and volumes, also called Hydromodification Management) have been phasing in since the initial Provision C.3 requirements took effect. Again, the effective dates of the new requirements and the specifics of compliance vary by permit. Currently, the Hydromodification Management requirements only apply in jurisdictions that have a Hydromodification Management Plan (HMP) that has been approved by the RWQCB and incorporated into a revised NPDES Municipal Stormwater Permit. The requirements for some Bay Area counties are summarized in this update memo. DHA can assist you in identifying the requirements specific to your jurisdiction. Links to additional information and resources are included below.

The RWQCB intends to make all the permit requirements and implementation dates essentially uniform for all Bay Area municipal stormwater permittees in the near future. A

draft Regional Municipal Stormwater Permit is currently being reviewed that will replace the existing individual NPDES permits.

As noted in my previous memo on Provision C.3, incorporating the C.3 requirements into the early phases of new project planning will reduce development costs and speed the approval process by reducing or eliminating the need for redesign of the site plan once it gets to the municipal review process. Planning ahead will also improve the integration of treatment and flow controls into the site design plan and site landscaping.

### **Who Must Include Hydromodification Management Measures in their Projects?**

Effective June 12, 2007 in Alameda County and October 12, 2006 in Contra Costa County, new development and redevelopment creating 1 acre or more of new or replacement impervious surfaces must control stormwater runoff flow and volume so that post-project runoff does not exceed estimated pre-project rates and durations. In Alameda, Santa Clara, and San Mateo counties and the Fairfield-Suisun Sewer District, the project or runoff from the project must also be located within a mapped Hydromodification Management (HM) Control Area. The requirements apply where such increased flow and/or volume is likely to cause increased erosion of creek beds and banks, increased generation of silt, or other adverse impacts to beneficial uses due to increased erosive force. Projects subject to this requirement must incorporate on-site and regional HM controls to achieve post-project discharge rates and durations that meet criteria established in the individual NPDES Municipal Stormwater Permits. Examples of the criteria include the following (which may provide for exceptions not listed in this summary):

- a) In Alameda and San Mateo counties, for flow rates ranging from 10 percent of the pre-project 2-year peak flow (0.1Q<sub>2</sub>) to the pre-project 10-year peak flow (Q<sub>10</sub>), the post-project discharge rates and durations shall match the pre-project rates and durations. In Contra Costa County, they shall not deviate above the pre-project rates and durations by more than 10 percent over more than 10 percent of the length of the flow duration curve.
- b) In Alameda County, the post-project flow duration curve shall not deviate above the pre-project flow duration curve by more than 10 percent over more than 10 percent of the length of the curve corresponding to the range of flows to control. The flow rate shall be no greater than 10 percent of the pre-project 2-year peak flow.
- c) In Contra Costa County, for flow rates ranging from 0.5Q<sub>2</sub> to Q<sub>2</sub>, the post-project peak flows shall not exceed pre-project peak flows. For flow rates ranging from Q<sub>2</sub> to Q<sub>10</sub>, post-project peak flows may exceed pre-project flows by up to 10 percent for a 1-year frequency interval. For example, post-project flows could exceed pre-project flows by up to 10 percent for the interval from Q<sub>9</sub> to Q<sub>10</sub> or from Q<sub>5.5</sub> to Q<sub>6.5</sub>, but not from Q<sub>8</sub> to Q<sub>10</sub>.

Regional HM controls are flow duration control structures that collect stormwater discharge from multiple projects; they must achieve (in combination with on-site controls) the HM standard at the point where the regional HM control discharges. Applicable flow rates and durations must be determined using the Bay Area Hydrology Model (BAHM) or a continuous simulation hydrologic computer model, such as those developed by the U.S. EPA and U.S. Army Corps of Engineers.

Although single-family homes not part of a larger development are exempt from the requirements, the NPDES permit holders are required to require this type of project applicant to incorporate site design/landscape characteristics which maximize infiltration (where appropriate), provide retention or detention, slow runoff, and minimize creation of impervious surfaces to the maximum extent practicable. This also applies to several other categories of exempt development, including: sidewalks, bike lanes, and trails associated with streets, roads, highways, or freeways; transit villages; affordable housing within a Redevelopment Project Area; and redevelopment of a brownfield site within a Redevelopment Project Area. Additional details on exemptions are beyond the scope of this summary memo.

In addition to the exemptions to the HM standards, in some counties (e.g., Alameda and San Mateo) Provision C.3 includes an Impracticability Provision. Where extreme space limitations or other conditions prevent a project from meeting the HM standard for a reasonable cost (i.e., no more than 2 percent of total project costs), and where the project's runoff cannot be directed to a regional HM control within a reasonable timeframe, and where an in-stream measure is not practicable, the project will be permitted to exceed the HM standards. However, the project must: (1) use site design for hydrologic source control; (2) incorporate stormwater treatment measures that collectively minimize, slow, and detain runoff to the maximum extent practicable; and (3) contribute financially, according to parameters set forth in the permit, to an alternative HM project.

### **HM Controls**

Achieving the applicable HM standards can be accomplished by incorporating Low Impact Development (LID) Integrated Management Practices (IMPs), which may also be used to provide the on-site stormwater treatment already required by Provision C.3. Typical IMPs include grassy swales, planter boxes, and other bioretention areas. Such structural controls are likely to require greater capacity than is required to meet the on-site treatment requirements of Provision C.3, which just require treatment of 80 percent of the average runoff volume.

HM measures can also consist of site planning approaches that minimize hydrological effects of new development, such as discontinuous stormwater collection (e.g., disconnected roof leaders), pervious pavements, and reduced impervious surfaces.

A third type of HM measure is in-stream or restorative measures that modify susceptible streams and other receiving watercourses to be able to withstand projected increases in runoff flows and durations without increasing erosion. Any of these approaches, or a combination of them, may be used to achieve compliance with applicable HM standards.

### **What's Next?**

The RWQCB is in the process of issuing a new Regional Municipal Stormwater Permit that will supercede the permits previously issued to Alameda, Contra Costa, San Mateo, and Santa Clara counties; the cities of Fairfield and Suisun City and the Fairfield-Suisun Sewer District; and the City of Vallejo and the Vallejo Sanitary District. The District issued a Tentative Order and draft permit on December 4, 2007 (updated on December 14, 2007) and has been reviewing comments and making revisions over the past year. Issuance of a final permit is anticipated in 2009.

## **Conclusion**

Provision C.3 imposes significant additional requirements on new development and redevelopment projects that collectively will result in environmental improvements benefiting us all. Project applicants will serve themselves and their projects best if they begin incorporating the required stormwater controls into the earliest stages of site and project design.

## **More Resources**

The following websites provide extensive resources on the stormwater management requirements applicable to the indicated jurisdiction:

Alameda Countywide Clean Water Program:

[http://cleanwaterprogram.com/businesses\\_developers.htm](http://cleanwaterprogram.com/businesses_developers.htm)

Contra Costa Clean Water Program: <http://www.cccleanwater.org/new-developmentc3/>

Santa Clara Valley Urban Runoff Pollution Prevention Program: <http://www.scvurppp-w2k.com/hmp.htm> and [http://www.scvurppp-w2k.com/guidance\\_tools.htm](http://www.scvurppp-w2k.com/guidance_tools.htm)

San Mateo Countywide Water Pollution Prevention Program:

[http://www.flowstobay.org/bs\\_new\\_development.php](http://www.flowstobay.org/bs_new_development.php)