September 14, 2012

Via electronic mail

Mr. David Gibson
Executive Officer and Members of the Board
California Regional Water Quality Control Board, San Diego Region
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San Diego, CA 92123
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Re: Comments on Tentative Order R9-2012-0011, San Diego Region MS4 Permit, April 9, 2012 Draft

Dear Mr. Gibson:

On behalf of the Natural Resources Defense Council ("NRDC"), we are writing with regard to the April 9, 2012, Draft National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds Within the San Diego Region, Draft permit R9-2012-0011, NPDES Permit No. CAS0109266 ("Draft Permit"). We appreciate the opportunity to submit these comments to the San Diego Regional Water Quality Control Board ("Regional Board") on the Draft permit.

I. Stormwater Runoff is a Leading Source of Water Pollution in the San Diego Region

The U.S. Environmental Protection Agency ("U.S. EPA") considers urban runoff to be "one of the most significant reasons that water quality standards are not being met nationwide."[1] As the U.S. EPA has stated:

> Most stormwater runoff is the result of the man-made hydrologic modifications that normally accompany development. The addition of impervious surfaces, soil compaction, and tree and vegetation removal result in alterations to the movement of water through the environment. As interception, evapotranspiration, and infiltration are reduced and precipitation is converted to overland flow, these modifications affect not only the characteristics of the developed site but also the watershed in

[1] U.S. General Accounting Office (June 2001) *Water Quality: Urban Runoff Programs*, Report No. GAO-01-679.

> which the development is located. Stormwater has been identified as one of the leading sources of pollution for all waterbody types in the United States. Furthermore, the impacts of stormwater pollution are not static; they usually increase with more development and urbanization.[2]

In the San Diego Region, the Regional Board has found that:

- Land development has created and continues to create new sources of non-storm water discharges and pollutants in storm water discharges as human population density increases. This brings higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, and trash. Pollutants from these sources are dumped or washed off the surface by non-storm water or storm water flows into and from the MS4s (Draft Permit, at Finding 11);

- [C]ommon pollutants in runoff discharged from the MS4s include total suspended solids, sediment, pathogens (e.g., bacteria, viruses, protozoa), heavy metals (e.g., cadmium, copper, lead, and zinc), petroleum products and polynuclear aromatic hydrocarbons, synthetic organics (e.g., pesticides, herbicides, and PCBs), nutrients (e.g., nitrogen and phosphorus), oxygen-demanding substances (decaying vegetation, animal waste), detergents, and trash (Draft Permit, at Finding 13); and,

- Copermittees' water quality monitoring data submitted to date documents persistent exceedances of Basin Plan water quality objectives for runoff-related pollutants at various watershed monitoring stations. Persistent toxicity has also been observed at several watershed monitoring stations. In addition, bioassessment data indicate that the majority of the monitored receiving waters have Poor to Very Poor Index of Biotic Integrity (IBI) ratings. These findings indicate that runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in the San Diego Region. (Draft Permit, at Finding 15.)

The Draft Permit establishes requirements critical to addressing this pollution.

[2] U.S. Environmental Protection Agency (December 2007) *Reducing Stormwater Costs through Low Impact Development (LID) Strategies and Practices*, at v.

II. Pollutants in Stormwater Must be Reduced to the Maximum Extent Practicable

Consistent with the federal Clean Water Act, a fundamental goal of all municipal stormwater permits is to ensure that discharges from storm sewers do not cause or contribute to a violation of water quality standards. (33 U.S.C. § 1341.) In addition, for MS4s covered under the National Pollutant Discharge Elimination System program, permits for discharges from municipal storm sewers:

> shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

(33 U.S.C. § 1342(p)(3)(B)(iii).) The maximum extent practicable ("MEP") standard serves effectively as a floor to performance for regulated parties. This standard does not grant unbridled leeway to Permittees in developing controls to reduce the discharge of pollution. "[W]hat the discharger will do to reduce discharges to the 'maximum extent practicable' . . . crosses the threshold from being an item of procedural correspondence to being a substantive requirement of a regulatory regime." (*Environmental Defense Center, Inc. v. U.S. E.P.A* (9th Cir. 2003) 344 F.3d 832, 853.) The MEP standard "imposes a clear duty on the agency to fulfill the statutory command to the extent that it is feasible or possible." (*Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121, 131 (D.D.C. 2001); *Friends of Boundary Waters Wilderness v. Thomas*, 53 F.3d 881, 885 (8th Cir. 1995) ("feasible" means "physically possible").

As one state hearing board held:

> [MEP] means to the fullest degree technologically feasible for the protection of water quality, except where costs are wholly disproportionate to the potential benefits…. This standard requires more of Permittees than mere compliance with water quality standards or numeric effluent limitations designed to meet such standards…. The term "maximum extent practicable" in the stormwater context implies that the mitigation measures in a stormwater permit must be more than simply adopting standard practices. This definition applies particularly in areas where standard practices are already failing to protect water quality….

(*North Carolina Wildlife Fed. Central Piedmont Group of the NC Sierra Club v. N.C. Division of Water Quality* (N.C.O.A.H. October 13, 2006) 2006 WL 3890348, Conclusions of Law 21-22 (internal citations omitted).) The North Carolina board further found that the permits in question violated the MEP standard both because commenters highlighted measures that would reduce pollution more effectively than the permits' requirements and because other controls, such as infiltration measures, "would [also]

reduce discharges more than the measures contained in the permits." (*Id.* at Conclusions of Law 19.)

Nor is MEP a static requirement—the standard anticipates and in fact requires new and additional controls to be included with each successive permit. As U.S. EPA has explained, NPDES permits, including the MEP standard, will "evolve and mature over time" and must be flexible "to reflect changing conditions." (55 Fed. Reg. 47990, 48052.) "EPA envisions application of the MEP standard as an iterative process. MEP should continually adapt to current conditions and BMP effectiveness and should strive to attain water quality standards. Successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards." (64 Fed. Reg. 68722, 68754.) In other words, successive iterations of permits for a given jurisdiction will necessarily evolve, and contain new, and more stringent requirements for controlling the discharge of pollutants in runoff.

Requiring compliance with MEP is often synonymous with achieving water quality standards and other common permit terms. Nonetheless, permits also require "such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." This language in section 1342(p) has been held by California courts to grant "the EPA (and/or a state approved to issue the NPDES permit) . . . the discretion to impose 'appropriate' water pollution controls in addition to those that come within the definition of 'maximum extent practicable.'" (*Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 883 (citing *Defenders of Wildlife v. Browner* (1999) 191 F.3d 1159, at 1165–1167).) As a result, while the MEP standard represents a statutory floor, rather than limit, for permit requirements, the Regional Board and EPA maintain the authority to impose additional restrictions over and above MEP as they determine appropriate. Both California and EPA maintain that MS4 permits must include provisions to ensure that discharges do not cause or contribute to exceedances of water quality standards.

III. Permit Provisions

A. The Draft Permit's Receiving Water Limitations Appropriately Prohibit Discharges that Cause or Contribute to the Violation of Water Quality Standards.

Consistent with the 2007 San Diego County MS4 Permit and federal authority,[3] the Draft Permit requires that "Discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters." (Draft Permit, at § II.A.2.a.)[4] Multiple California and federal courts have upheld such provisions, including in prior

[3] Order No. R9-2007-0001 ("2007 San Diego Permit").
[4] See, 2007 San Diego Permit, at § A.3; see also, South Orange County MS4 Permit, Order No. R9-2009-0002, at § A.3.

iterations of the San Diego MS4 Permit.[5] As such, the prohibition against discharges that cause or contribute to violations of water quality standards is appropriately incorporated into the Draft Permit's receiving water limitations here. Moreover, any weakening of the receiving water limitations language would constitute a violation of the Clean Water Act's anti-backsliding provisions.[6] The adopted permit must require compliance with water quality standards, without restriction.

B. The Draft Permit's Development Planning Requirements Must Require On-Site Retention of the 85th Percentile Storm

We strongly support that the Draft Permit establishes requirements for new development and redevelopment projects to retain, on-site, the runoff from the 85th percentile, 24-hour rain event.[7] This requirement, resulting in retention of stormwater runoff with no off-site discharge in the vast majority of storms, is consistent with on-site retention requirements of other permits throughout California, as well as in permits and ordinances found in all corners of the United States. Similar or more stringent requirements are included in the following permits:

Ventura County: MS4 permit requires on-site retention of ninety-five percent of rainfall from the 85th percentile storm; off-site mitigation allowed if on-site retention is technically infeasible;[8]

South Orange County: MS4 permit requires on-site retention of the 85th percentile storm, off-site mitigation allowed if on-site retention is technically infeasible;[9]

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[5] *See, e.g.*, *Building Industry Ass'n of San Diego County*, 124 Cal.App.4th at 883; *In re L.A. County Mun. Storm Water Permit Litigation.*, No. BS 080548 at 4-7 (L.A. Super. Ct. Mar. 24, 2005) ("*L.A. County Mun. Stormwater*"); *County of Los Angeles v. Cal. State Water Res. Control Bd.* (2006) 143 Cal.App.4th 985, 989; *Natural Resources Defense Council v. County of Los Angeles* (2011) 673 F.3d 880, 897. The court in *In re L.A. County Mun. Stormwater* noted that, "the Regional Board acted within its authority when it included Parts 2.1 and 2.2 in the Permit without a 'safe harbor,' whether or not compliance therewith requires efforts that exceed the 'MEP' standard." (*In re L.A. County Mun. Stormwater*, at 7.) But regardless of this authority, the Court found that "the terms of the Permit taken, as a whole [including the Permit's receiving water limitations], constitute the Regional Board's definition of MEP." (*Id*. at 7-8.)

[6] 40 C.F.R. 122.44(l)(1) provides that except for a narrow set of enumerated circumstances, "when a permit is renewed or reissued, interim effluent limitations, standards, or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit."

[7] We note, however, that the evidence presented below, including reports from Dr. Richard Horner and examples of permits and ordinances from other jurisdictions, would support requirements for projects to retain runoff from up to and including the 95th percentile storm event.

[8] Los Angeles Regional Water Quality Control Board (July 8, 2010) Ventura County Municipal Separate Stormwater National Pollutant Discharge Elimination System (NPDES) Permit; Order No. R4-2009-0057; NPDES Permit No. CAS004002.

[9] San Diego Regional Water Quality Control Board (December 16, 2009) South Orange County MS4 Permit, Order No. R9-2009-0002, NPDES Permit No. CAS0108740.

Washington D.C.: MS4 permit requires retention of the first 1.2 inches of stormwater (which represents the 90th percentile storm) for all new development and redevelopment over 5,000 square feet.[10]

West Virginia: Statewide Phase II MS4 permit requires on-site retention of "the first one inch of rainfall from a 24-hour storm" event unless infeasible;[11] and,

Philadelphia, PA: Infiltrate the first one inch of rainfall from all impervious surfaces; if on-site infiltration is infeasible, the same performance must be achieved off-site.[12]

These jurisdictions have recognized the paramount importance of mandating onsite retention of a certain quantity of stormwater since, in contrast to retention practices, which ensure that 100 percent of the pollutant load in the retained volume of runoff does not reach receiving waters, biofiltration (or other LID flow-through) practices that treat and then discharge runoff through an underdrain result in the release of pollutants to receiving waters. Indeed, in order to achieve equivalent pollutant load reduction benefits to the use of on-site retention, biofiltration practices would have to be 100 percent effective at filtering pollutants from runoff, which they are invariably not. As a result, while biofiltration practices (or conventional flow-through) practices may be appropriate for on-site treatment when coupled with an offsite mitigation requirement in cases of technical infeasibility (discussed further below), they are not a proper substitute for LID practices that retain water on-site.

This conclusion is borne out by data presented in the Draft Ventura County Technical Guidance Manual, which estimates pollutant removal efficiency for total suspended solids to be 54-89 percent, and for total zinc to be 48-96 percent.[13] Biofiltration has additionally been shown to be a particularly ineffective method of pollutant removal for addressing nitrogen or phosphorous, two common contaminants found in stormwater.[14] The Draft Ventura Technical Guidance, for example, indicates that biofiltration achieves

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[10] U. S. EPA (2011) Fact Sheet, National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit No. DC0000221 (Government of the District of Columbia).
[11] State of West Virginia Department of Environmental Protection, Division of Water and Waste Management, General National Pollution Discharge Elimination System Water Pollution Control Permit, NPDES Permit No. WV0116025 at 13-14 (June 22, 2009).
[12] City of Philadelphia (Jan. 29, 2008) Stormwater Management Guidance Manual 2.0, at 1.1, available at.
[13] Ventura County Low Impact Development Technical Guidance Manual, July 13, 2011, at D-7.
[14] Lawn irrigation has been identified as a "hot spot" for nutrient contamination in urban watersheds—lawns "contribute greater concentrations of Total N, Total P and dissolved phosphorus than other urban source areas . . . source research suggests that nutrient concentrations in lawn runoff can be as much as four times greater than other urban sources such as streets, rooftops or driveways." Center for Watershed Protection (March 2003) *Impacts of Impervious Cover on Aquatic Systems* at 69; see also H.S. Garn (2002) *Effects of lawn fertilizer on nutrient concentration in runoff from lakeshore lawns, Lauderdale Lakes, Wisconsin.* U.S. Geological Survey Water- Resources Investigations Report 02-4130 (In an investigation of runoff from lawns in Wisconsin, runoff from fertilized lawns contained elevated concentrations of phosphorous and dissolved phosphorous).

pollutant removal efficiency for total nitrogen at between only 21-54 percent,[15] as compared with 100 percent for runoff retained on-site.

The retention requirement in the Draft Permit is additionally supported by recent technical analysis by national stormwater expert Dr. Richard Horner. Dr. Horner's analysis demonstrates that, for five different types of land use development or redevelopment projects in Southern California, the full 85th percentile, or even the full 95th percentile, 24-hour precipitation event could be retained on-site using *only* infiltration practices on sites overlying soils classified as Group C (typically containing 20 to 40 percent clay) under the Natural Resources Conservation Service (NRCS) major soil orders classification scheme.[16] Even for sites overlying Group D soils (typically 40 percent or more clay with substantially restricted water transmissivity) and assuming no infiltration was feasible, greater than 50 percent of the 85th percentile storm could be retained at each development type using only rooftop runoff dispersion or harvest and reuse techniques.[17] Additional retention under these scenarios could be achieved through use of evaporation practices, or, in cases where some infiltration is feasible, use of infiltration BMPs.

Additional analysis by Dr. Horner has amply demonstrated both the viability of, and need for, such a retention standard. A principal reason to adopt such an approach is the superior pollutant load reduction capacity of LID practices that retain runoff on-site, for a variety of climatic scenarios, including for the San Diego region.[18] With particular regard to the feasibility of the type of retention standard proposed by the Draft Permit, Dr. Horner has found that, in nearly all case studies, "all storm water discharges could be eliminated at least under most meteorological conditions by dispersing runoff from impervious surfaces to pervious areas."[19]

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[15] Ventura County Low Impact Development Technical Guidance Manual, July 13, 2011, at D-7. See also, BASMAA (December 1, 2010) *Draft Model Bioretention Soil Media Specifications-MRP Provision C.3.c.iii*, at Annotated Bibliography section 3.0 (noting nutrient removal from synthetic stormwater runoff demonstrated only 55 to 65 percent of total Kjeldahl nitrogen removal and that only 20 percent of nitrate is removed from the runoff).

[16] Dr. Richard Horner and Jocelyn Gretz (November 2011) Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices Applied to Meet Various Potential Stormwater Runoff Regulatory Standards; Natural Resources Conservation Service, Distribution Maps of Dominant Soil Orders (http://soils.usda.gov/technical/classification/orders/, last accessed December 16, 2011).

[17] Id. We note as well that even in areas characterized regionally as underlain by D soils, site specific investigation may establish substantial potential for infiltration of runoff.

[18] Id.; see also, Horner, Richard. Report for Ventura County; Horner, Richard. Initial Investigation for San Francisco Bay Area; Horner, Richard. Supplementary Investigation for San Francisco Bay Area; Horner, Richard. Report for San Diego Region.

[19] Horner, Ventura Report, at 15.

1. LID Is Cost-Effective and Provides Significant Economic Benefits

LID "provides ecosystem services and associated economic benefits that conventional stormwater controls do not."[20] Because traditional stormwater management approaches involve the construction of complex systems of infrastructure, they can entail substantial costs. Since LID attempts to mimic the predevelopment hydrology of a site, emphasizing storage and use, infiltration, and use of a site's existing drainage conditions, "[c]ost savings are typically seen in reduced infrastructure because the total volume of runoff to be managed is minimized."[21] A 2007 U.S. EPA study found that "in the vast majority of cases . . . implementing well-chosen LID practices saves money for developers, property owners, and communities while protecting and restoring water quality."[22] With only "a few exceptions," the EPA study found that "[t]otal capital cost savings ranged from 15 to 80 percent when LID methods were used" instead of conventional stormwater management techniques.[23] The savings identified in documented studies are noteworthy considering they do not reflect the additional economically beneficial attributes LID provides, including reduced costs of municipal infrastructure, reduced costs of municipal stormwater management, and increased value of real estate.[24]

Nor is the EPA study alone in reaching this conclusion. A survey released by the American Society of Landscape Architects in 2011 found that green infrastructure reduced or did not influence project costs 75 percent of the time.[25] A joint project by the University of New Hampshire Stormwater Center and Virginia Commonwealth University found that use of LID provided stormwater management cost savings of 6 percent for residential development and 26 percent for commercial developments as compared with conventional stormwater management.[26] And while the economics of integrating LID into redevelopment projects vary slightly from new development, there is little evidence it typically raises project costs. An analysis of three communities by ECONorthwest found that while complying with stormwater standards, including strict

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[20] ECONorthwest, The Economics of Low-Impact Development: A Literature Review, at iii. (2007) ("ECONorthwest") (Exh. 61).
[21] U.S. EPA Cost Study, at 2; U.S. Department of Housing and Urban Development, The Practice of Low Impact Development, at 33 (2003) (Exh. 62).
[22] U.S. EPA Cost Study, at iii.
[23] *Id.* at iv.
[24] See ECONorthwest, at 5; *Id*. at 15 (disconnecting downspouts to allow for natural infiltration in the Beecher Water District near Flint, Michigan cost the district about $15,000, but decreased the mean volume of sewer flows by 26 percent, and saved the district more than $8,000 per month in stormwater fees); U.S. EPA Cost Study, at 7.
[25] American Society of Landscape Architects (2011) Advocacy: Stormwater Case Studies.
[26] Roseen, R., T. Janeski, J. Houle, M. Simpson, and J. Gunderson (2011) *Forging the Link: Linking the Economic Benefits of Low Impact Development and Community Decisions*. University of New Hampshire Stormwater Center, the Virginia Commonwealth University, and Antioch University New England; see generally, NRDC (2011) Rooftops to Rivers II: Green Strategies for Controlling Stormwater and Combined Sewer Overflows, at 19-30.

runoff volume reduction requirements, is a cost consideration, it is rarely, if ever, a driving factor in decisions to undertake redevelopment projects.[27]

Further, LID can provide substantial benefits for the San Diego region in terms of increased local supply of water and reduced energy usage, in addition to the stormwater runoff and pollution benefits it can provide.[28]

2. The Draft Permit Properly Requires a Determination that it is Technically Infeasible to Retain the Design Storm On-Site.

Although we support the inclusion of strong retention standards for stormwater runoff, and the Draft Permit's requirement to incorporate on-site treatment in addition to performance of offsite mitigation in the event of technical infeasibility for on-site retention, we are concerned by statements of Regional Board staff that they "would like to make a shift away from determining what is infeasible onsite to determining what is feasible onsite. . . ." (Regional MS4 Permit RWQCB Workshop Notes, September 5, 2012, at 4.) Retention of the 85th Percentile Storm event has been established as MEP in California Permits;[29] responsibility is properly placed on the project proponent to establish, given site specific conditions, that this standard cannot be met.

3. The Draft Permit's Mitigation Requirements for Offsite Projects Must Prioritize Projects that Retain Runoff With no Discharge to Receiving Waters.

While we support the Draft Permit's requirement that a Priority Development Project meeting the technical infeasibility criteria for on-site retention must perform on-site treatment of runoff and additionally implement an offsite mitigation project (or provide sufficient funding for an offsite mitigation project), we note that in order to ensure that equivalent pollutant load is reduced as would have been achieved through on-site retention, the Mitigation program should prioritize implementation of offsite projects that retain runoff with no discharge. These may include, as identified in the Draft Permit, retrofitting opportunities, green streets, infrastructure projects, or regional BMPs that

[27] ECONorthwest (2011) "Managing Stormwater in Redevelopment and Greenfield Development Projects Using Green Infrastructure: Economic Factors that Influence Developers Decisions,"prepared by S. Reich et al, accessed at http://www.americanrivers.org/assets/pdfs/reports-andpublications/stormwater-green-report.pdf, p. 2.

[28] See, NRDC and University of California at Santa Barbara (2009) A Clear Blue Future: How Greening California Cities Can Address Water Resources and Climate Challenges in the 21st Century; See also, NRDC (2011) Capturing Rainwater from Rooftops: An Efficient Water Resource Management Strategy that Increases Supply and Reduces Pollution; NRDC and University of California at Los Angeles (2012) Looking Up: How Green Roofs and Cool Roofs Can Reduce Energy Use, Address Climate Change, and Protect Water Resources in Southern California.

[29] See, e.g., Ventura County MS4 Permit, Order No. R4-2009-0057; San Francisco Bay Area MS4 Permit, Order No. R2-2009-0074; North Orange County MS4 Permit, Order No. R8-2009-0030; South Orange County MS4 Permit, Order No. R9-2009-0002.

receive runoff from multiple sites. However, as demonstrated above, retention BMPs, including infiltration, harvest and re-use, and evaporation, result in a greater reduction in pollutant load than do projects that treat and discharge runoff to receiving waters, while simultaneously reducing flooding that treat and discharge projects may do little to abate. Further, LID retention projects can be designed to capture water through infiltration or rainwater harvesting to increase local water supplies, a critical concern for the region. As a result, the Draft Permit's Mitigation program should focus on retention of stormwater runoff, and not solely on a range of projects identified as broadly beneficial in Permittee Water Quality Improvement Plans.

IV. Conclusion

We appreciate this opportunity to comment on the Draft Permit. Please feel free to contact us with any questions or concerns you may have.

Sincerely,

Noah Garrison
Project Attorney
Natural Resources Defense Council