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December 17, 2012

Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

Subject: Comment Letter – Revised Draft Phase II Small MS4 Permit

The Solano County appreciates the opportunity to comment on the revised Phase II Small MS4 Permit (Draft Phase II Permit). Solano County recognizes and appreciates the time and energy that the State Water Board staff has taken in responding to public concern over the MS4 Permit. Although we still have significant comments on the language and content in many areas of the permit, we believe the third draft has been greatly improved in clarity and feasibility in comparison to previous drafts. We ask the Board to continue to participate in the public comment process in order to create the best permit for improving water quality.

Solano County's significant concerns are noted within this letter. References to specific sections of the permit, including comments on formatting and consistency issues, can be found in Attachment 1: Solano County's comments on Draft Phase II Small Permit provisions.

Areas of Concern:

1. Receiving Water Limitations Language

Receiving Water Limitations language is an important issue for all permittees in the State. In reaction to mass public comment on Receiving Water Limitations, the Board has revised the permit to include a reopener clause, allowing the Board to modify the language after a period of public review. Solano County believes that the State Water Board should address this issue before applying the permit, and

Building & Safety David Cliche Chief Building Official	Planning Services Mike Yankovich Program Manager	Environmental Health Terry Schmidtbauer Program Manager	Administrative Services Suganthi Krishnan Senior Staff Analyst	Public Works Engineering Matt Tuggle Engineering Manager	Public Works Operations Wayne Spencer Operations Manager
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not defer the issue via a reopener clause. A public workshop was held on November 20, 2012, which provided the Board with adequate input to review this issue. We at Solano County request that the permit not be rushed to adoption before the permittees, public, and the State Water Board has had adequate time to develop a resolution.

Solano County urges the Board to resolve the Receiving Water Limitation language and present a complete permit for adoption.

2. Central Coast Post-Construction Requirements

Solano County has significant concerns with the last-minute addition of Central Coast Post-Construction requirements. The Post-Construction Management Program (E.12) section of the permit has been through a two year, thorough review process. This has resulted in clear, implementable requirements for permittees. By amending the permit to include new regulations in this late edit, the Water Board has circumvented the public comment process for this section, which gives permittees inadequate time to evaluate the potential impacts of these regulations.

Additionally, the new Central Coast requirements are the most stringent in the State, are not justified through testing of environmental benefits, and they circumvent Central Coast Regional Board implementation in the area. This would leave permittees unable to petition their claims to the State from the Regional Board regulations. Solano County supports CASQA's technical and legal arguments against amending the Central Coast Regional Board's land development regulations into the State permit (Attachment 2: Additional Central Coast Post-Construction Requirement Comments).

Solano County urges the Board to delete any new Central Coast Post-Construction Requirements provisions in the permit, as well as Attachment J.

3. Inspections of Industrial and Commercial facilities for Illicit Discharges

A number of sections in the permit relate to the MS4 permittee's responsibility to inspect and/or report facilities covered under the Industrial General Permit (IGP) and/or the Construction General Permit (CGP). As written, the permit requires the MS4 permittee to determine if facilities should be covered under the IGP, to refer non-filers, and to implement procedures to identify illicit discharges originating from facilities under the IGP and CGP as part of outfall inspections. This requires that an MS4 permittee understand and enforce other permits, and is beyond the scope and responsibility of financially strained MS4s. Solano County requests that the permit be revised to say that MS4 permittees shall notify the appropriate Regional Board of suspected non-filers and suspected or real illicit discharges, and that all responsibility for the MS4 permittees to enforce IGPs and CGPs be removed from the permit draft.

4. The need for clear, implementable, consistent, and cost-effective guidelines

Through the review of the public, permittees, and the State Water Board, there have been significant improvements in the permit's clarity and feasibility. Solano County appreciates these gains and

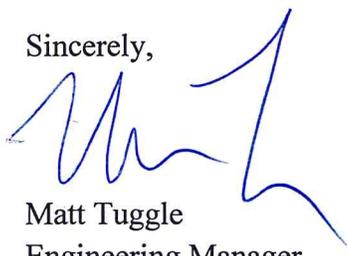
believes that improved, feasible guidelines will better protect water quality throughout the State. However there are still areas that need to be improved and clarified before implementation of the permit should be considered by State Water Board staff. The following examples are given to illustrate areas that need review and modification, and are not an exhaustive list:

- Legal Authority (E.6.a.ii.h, p. 24): The permit originally obligated permittees to gain the legal authority to access private property. It was revised to say that the permittee must gain the legal authority to access private property according to State and Federal laws. While this is a gain in feasibility, it still poses an undue challenge to permittees. As the State permitting agency, the Board should research, understand, and implement as guidelines the applicable State and Federal laws. Obligating small MS4s to research and understand the legalities of this requirement will be burdensome and costly, with no benefit to water quality. Solano County urges the State Water Board to research this issue before permit issuance, as the Board has the legal resources to understand applicable laws as well as the obligation to provide small MS4s with clear, implementable guidelines for compliance.
- Education and Outreach (E.7.a.ii.j, p. 30): This section obligates the permittee to educate students in elementary schools. As previously indicated by many public comments, permittees have no authority over school curriculum (unless they are a school district). Requiring that an MS4 obtain legal authority to enter school curriculum is not legal or feasible and should be removed from the permit. Solano County requests that the permit be revised to have MS4s develop and make available education and outreach materials without the mandate to educate in class.
- Water Quality Monitoring (E.13, p. 83): Clarification is needed in the language of this provision. As written, it states that all or the majority of permittees need to collaborate to be considered a regional monitoring program. As is, this means that all or a majority of permittees in California would have to participate. This is not believed to be the intent of the provision and should be revised to say that all or a majority of permittees in a region, or that answer to a Regional Board, must participate to be considered a regional monitoring program.

These are just a few of the many clarifications and modifications needed. There are also significant formatting and grammatical issues throughout much of the permit. Specific comments on these issues can be seen in Attachment 1. We urge the Board to review and resolve these issues before permit adoption

Thank you for your consideration of our concerns.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Matt Tuggle', with a large, stylized flourish extending upwards and to the right.

Matt Tuggle
Engineering Manager

Attachment 1: Solano County’s comments on Draft Phase II Small MS4 Permit provisions

Comment #	Permit Element/ Concern	Section/Page	Comments/Recommendations
1	Findings – Reopener clause	Findings #38 (11)	<p>-The text of this finding refers to a workshop on receiving water limitations provisions in the permit, held on November 20, 2012. Specific dates passed as part of the workshop are not relevant to permitting requirements and should be omitted. Solano County</p> <p>- Solano County appreciates the attention the State Board has paid towards the Receiving Water language in reaction to public comments. However, we urge that this issue be resolved before permit implementation with continued public workshops, cost-benefit analysis, and peer-reviewed studies on water quality improvement measures, if feasible. Solano County feels that the process of revisions has clarified and improved the draft permit for all involved, and that resolving issues before permit adoption will create a better regulatory document to protect water quality in its clarity of requirements. To rush past the larger issues in order to put the permit into action may enact regulations later deemed unnecessary or excessive, but leaves the permittees at the mercy of regulators and private lawsuits during the interim.</p>
2	Discharge Prohibitions – Appreciations	B.4 (18-19)	<p>-Solano County appreciates the Board’s revisions that clarify the response to recycled pond water overflow after a 25-year, 24-hour storm, which requires notification <i>after</i> the event, rather than before.</p> <p>-Solano County appreciates the deletion of e., which put the permittee responsible to do “any other actions necessary to prevent the discharge of incidental runoff”. We appreciate the Board’s recognition of feasible and unfeasible requirements, and the deletion of unfeasible requirements such as this one.</p>
3	Renewal traditional Small MS4 Permittees – Typo	E.1.b (20)	The end of the first paragraph of E.1.b needs a period at the end of the sentence.
4	Renewal Traditional Small MS4 Permittees – Modification/Clarification	E.1.b (20)	If the Executive Officer requests the SWMP because it is equally or more effective at reducing pollutants, the permittee will not need to provide “all additional BMPs”, as the BMPs in place are sufficient or better than permit requirements.

Attachment 1: Solano County’s comments on Draft Phase II Small MS4 Permit provisions

5	Legal Authority – Appreciations	E.6.a.ii (23)	SWB deleted the necessity to gain legal authority to eliminate non-storm water discharges through the MS4. We appreciate the Board’s recognition of feasible and unfeasible requirements, and the deletion of unfeasible requirements such as this one.
6	Legal Authority – Typo	E.6.a.ii.b (24)	At end of paragraph a comma is in the place of a period.
7	Legal Authority – Clarification	E.6.a.ii.h (24)	Requires the legal authority to enter private property, as consistent with applicable state and federal laws. This creates (a) a need for small local agencies to look up, understand, and apply state and federal laws in relation to private property, and so (b) a vague and costly step for small MS4s to have to comply with. As a state agency issuing a permit, the permittees would appreciate guidance on applicable state laws. Solano County believes that the SWB issuing the permit has the onus to understand the state and federal laws local agencies must comply with, and provide guidance on legal and illegal steps that can be taken to enter private property for the purpose of inspecting.
8	Legal Authority – Modification	E.6.a – E.6.b (23)	In the Task Description, requires the permittee to obtain adequate legal authority within the second year of the effective date of the permit. But in the Certification element, an amendment was added requiring that the permittee certify that it has and will maintain legal authority. This is in disagreement, and Solano County recommends that the first year amendment be deleted.
9	Certification – Appreciation	E.6.b.ii.a (25)	The Board deleted a clause requiring the permittee to keep an updated organizational chart specifying all departments, personnel, and contact information with stormwater-related responsibilities. We appreciate the Board’s recognition of feasible and unfeasible requirements, and the deletion of unfeasible requirements such as this one.
10	Enforcement Measures and Tracking – Clarification	E.6.c.ii.d.1 (26)	Requires MS4 permittee to refer non-filers of the IGP and CGP. Language in this clause suggests that the permittee is responsible for investigating whether each entity is appropriately covered, which is beyond the scope of the MS4 permit. Solano County recommends that language be revised to specify that <i>if</i> the MS4 learns of non-filer status, it must report. NOT that it is apprised of all facilities’ permitting.

Attachment 1: Solano County’s comments on Draft Phase II Small MS4 Permit provisions

11	Reporting – General Concerns	Throughout	The Board has substantially revised the reporting requirements in the permit draft. Solano County appreciates the deletion of onerous reporting requirements for each section, and the more inclusive method of reporting on compliance via a single reporting site. However, there were substantial comments on the earlier reporting requirements due to the number of provisions and the burdensome nature of many requirements. Without knowing the contents of the SMARTS report which each permittee will be obligated to do, we cannot comment on the benefits or costs of this system. We recommend that the State Water Board continues to work closely with permittees to develop appropriate SMARTS reporting requirements, and allow for public input into the system of reporting.
12	Education and Outreach – Modification/Deletion	E.7.a.ii.j (30)	This requires education of school-age children about storm water, and requires integration into school curricula. As previously stated by many entities (CASQA), local cities and counties have no authority to educate students in elementary school.
13	Construction Outreach and Education - Typo	E.7.b.2 (32)	Typo: the (1) a Qualified SWPPP Developer (QSD) is unnecessarily italicized.
14	Pollution Prevention and Good Housekeeping – Typo	E.7.b.3.ii.a (34)	Second sentence says annual, when the sentence before was changed to biennial. Revise all parts to say biennial for this provision.
15	Outfall Mapping – Appreciation	E.9.a.ii.a (37)	Solano County appreciates the Board’s efforts to create a more feasible outfall mapping guide by requiring only those outfalls located in urbanized areas.
16	Outfall Mapping – Appreciation	E.9.ii (37)	Solano County appreciates the Board’s recognition that submerged and inaccessible outfalls could pose a risk to surveyors and its decision to exclude these outfalls from inventory requirements.
17	Illicit Discharge Source/Facility Inventory – Modification	E.9.b.ii.c (38)	This provision obligates the permittee to determine if facilities are required to be covered under the IGP, and if they have done so. As stated by numerous agencies, this requirement goes beyond the MS4 Permit scope. The appropriate body for determining requirements for IGP coverage are the state and regional water boards. If left intact, this requirement necessitates the permittee to know the intricacies of the IGP in addition to their own permit.

Attachment 1: Solano County’s comments on Draft Phase II Small MS4 Permit provisions

			Solano County recommends that this provision be modified to convey that <i>if</i> the MS4 permittee has reasonable suspicion that a facility should be covered under IGP, either by being alerted to it or through outfall inspections, that they notify the appropriate water board.
18	Illicit Discharge Source/Facility Inventory – Deletion	E.9.b.ii.e (39)	This provision requires the assessment of inventoried facilities for the presence of illicit discharges. This is beyond the MS4 permit and makes the MS4 permittee inventory individual responsible for IGP and CGP illicit discharge inspection. This should be covered under their respective permits and should not be the responsibility of the MS4 permittee to identify and inspect. This requirement should be modified so that site visits are limited to outfall mapping and reporting to appropriate regional boards if illicit discharges are suspected to occur.
19	Illicit Discharge Source/Facility Inventory – Clarification/Modification	E.9.b.ii.e (39)	Provision says the permittee must implement inspection procedures for “all inventoried facilities and other priority areas...” This negates the usefulness of identifying priority areas, as all areas are required to be inspected. This should be clarified to say that priority areas must be inspected for illicit discharges, and allow the permittee to prioritize and de-prioritize facilities based on their risks and benefits for inspection.
20	Field Sampling to Detect Illicit Discharges – Clarification	E.9.c.i (39)	Language here should be clarified: “...conduct ... sampling of outfalls annually identified as priority areas”. Conduct sampling annually, or sample the outfalls identified annually? Clarify.
21	Field Sampling – Typo	E.9.c.ii.b (40)	Table 2 Heading – Correct “Paramaters” to Parameters.
22	Construction Site Inspection and Envorcement – Clarification	E.10.c.ii (47)	Unclear if “Bimonthly” here refers to two times a month or every other month. Seems to mean different things in each section (bimonthly during the rainy season, monthly during the rest of year = means twice monthly monthly during the rainy season and bimonthly during the remainder = every other month). Edit for clarity.
23	Storm Drain System Assessment and Prioritization	E.11.f.ii.a (53)	Permittees should be able to assess the legitimacy of complaints/reports from citizens and de-prioritize, if necessary. Solano County appreciates the Board’s commitment to prioritizing catch basins based on runoff and pollution factors

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			as well as citizen complains, but respectfully urges that there be a mode of assessing the priority of citizen complaints based again on the pollution and runoff (concrete) factors. As the Board may know, sometimes citizen requests, complaints, and reports are biased and may not always warrant a catch basin to be deemed as a high priority.
24	Landscape Design and Maintenance	E.11.j.ii.h (58)	Revision specifies prohibiting application of pesticides “as required by the regulations recently enacted...” This is a permit that will be in effect for many years, should not refer to ‘recent’ regulations. Delete this.
25	Regulated Projects – Typo	E.12.c.i (61)	Typo – last sentence of task description should have a period, not a colon.
26	Regulated Projects – Formatting Errors	E.12.c (61-64)	There are significant outline errors, as there are two sets of (a)-(c) under (ii) Implementation Level. Please edit for clarity in all provisions before considering permit issuance.
27	Low Impact Development (LID) Design Standards – Clarification	E.12.e.ii (66-67)	Many areas need clarification. E.g.: (5) Preserve significant trees – what constitutes “significant”? Also, e.g.: (7) Avoid excessive grading – what constitutes “excessive”? If permittees are to require regulated projects to consider optimizing these methods, they need clear guidelines on what to suggest to best impart LID standards.
28	Post-Construction Storm Water Management Requirements for Development Projects in the Central Coast Region	E.12.j. (82) and Attachment J	Solano County respectfully disagrees with the new inclusion of more stringent requirements on Development Projects in the Central Coast Region. This was added during the last round of edits, which the SWB described as non-substantial revisions. Adding these stricter guidelines is certainly a substantial revision, and one made after two rounds of public comments. Solano County disagrees with the method of this revision and strongly urges the Board to not move forward with permit issuance until this has had sufficient time for public comment, or until this provision is deleted from the permit. In addition, language in the Attachment suggests that the Water Board will amend the Order to incorporate similar requirements for remaining permittees in the future. In the opinion of Solano County, it is irresponsible to inject new, stricter protocols at the final stages of public review, especially when these protocols will likely affect many permittees in the future. The contents of the

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			permit are part of a ~2 year review process, which produced a much clearer and inclusive document for every permittee’s needs. These stricter standards should be subject to the same review process and not snuck in at the end, right before permit adoption – leaving no time for public understanding, commenting, and assessment.
29	Water Quality Monitoring – Formatting	E.13 (82-83)	The outline structure is not correct in this section. Also, there is a reference to E.13.i-v, when it is actually 1-4. Needs editing.
30	Water Quality Monitoring – Clarification	E.13 (83)	Clarification is needed in the language of the (former) Regional Monitoring section. As is, it says that all or a majority of the permittees collaborate to be considered a regional monitoring program. Which, as is, says that all/the majority of MS4s in California need to collaborate. Solano County doesn’t believe this is the intent of the Board, and recommends editing for clarity on how to define a regional monitoring program.
31	Receiving Water Monitoring – Clarification	E.13.a (84)	May need to clarify where monitoring stations should be placed. As is, specifies an upstream and downstream location. Is this anywhere in the MS4, in the same watershed, or in the same stream? Edit for clarity and guidance on this issue.
32	Receiving Water Monitoring – Formatting	E.13.a (84-89)	Significant formatting issues – spacing, outline errors, numbering errors. Please edit for clarity before permit issuance. Also, the SWAMP Quality Assurance Program Plan (2008) is a broken link.
33	Program Effectiveness Assessment and Improvement Plan – Typo	E.14.a (93)	In heading, “improvement” is not capitalized and should be.
34	Program Effectiveness Assessment and Improvement Plan – Appreciation	E.14.a.i (93)	Solano County appreciates the Board’s revision that lets permittees identify the effectiveness of prioritized BMPs, rather than each and every BMP. Solano County appreciates the Board’s recognition of requirements that are burdensome and do not help water quality and those that do, and allowing permittees to prioritize efforts based on pollutant reduction potential.
35	Public Education and Outreach – Appreciation	F.5.b.2 (103-104)	Solano County recognizes the revisions the Board made to education language, targeting developing materials instead of curriculum and conveying

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			reducing discharges verses definitively reducing discharges because of outreach. We appreciate the Board’s recognition of feasible and unfeasible requirements, and the modification of unfeasible requirements such as these.
36	Storm Drain System Assessment and Prioritization – Typo	F.5.f.6.ii.3 (117)	(3) Says “sweet sweeping”, should say street sweeping.
37	Regional Water Board Authorities – Dispute Resolution – Appreciation	G., H. (139)	Solano County appreciates the Board’s recognition of a need for a means of disputing certain requirements. We believe the process of public opinion has led to a more complete, reasonable, and useful document for the protection of water quality. We respectfully request that, in a dispute resolution, the Executive Officer of the Regional Board be given a timeline to respond, and that the Permittee’s timeline of only ten days be a) clarified – ten business days? And b) extended, as ten days is a difficult timeline, especially with other pressures in an MS4.
38	Permit Re-Opener – Issues	I (140)	Solano County appreciates the Board’s recognition of the need for continued public comment on Receiving Waters language. Solano County respectfully urges the Board to resolve these issues before issuing the permit. We believe that after the public workshop in November, the Board has sufficient means and cause to resolve this issue before applying the permit.

CASQA submitted comments on the Draft Resolution for the Central Coast Post-Construction Requirements on July 6, 2012. Among other things, these comments address the lack of technical justification behind the use of the 95th percentile, 24-hour rainfall event and inconsistencies that these requirements create statewide. These comments are relevant to the third draft of the Phase II permit due to the direct references and inclusion of the Central Coast Post-Construction Requirements in Attachment J. These comments are included below and are provided as part of CASQA's comments on the third draft of the Phase II permit.

Significant, last minutes changes were made to the Central Coast Post-Construction Requirements and therefore CASQA's July 6 comment letter does not address the hydrologic analysis to be used for determining design volume of runoff to be retained and treated onsite (included as Appendix D of the Central Coast Requirements). These requirements are of great concern as they are technically unjustified and were integrated without stakeholder input. Background regarding these requirements is provided below.

The hydrologic analysis to be used for determining design volume of runoff to be retained and treated onsite (included as Appendix D) provides an event-based sizing methodology as an option to a locally calibrated continuous simulation-based model. This event-based methodology originates from a WEF Manual of Practice that was applied incorrectly. The WEF Manual of Practice (No. 87) is used for sizing a water quality capture volume based upon long-term mean precipitation depths throughout the U.S. (generally, the 82-88th percentile). Simple regression equations were then determined to relate the mean rainfall depth to the maximized water quality runoff capture volume. Regression constants based upon those data is provided, depending upon the drain time of a water quality detention facility. The regression constant for a 48-hr drain time is 1.963. (Note: the 2012 WEF Manual of Practice is updated and no longer includes the regression constant at all.)

From WEF Manual of Practice (No. 87):

$$P_o = (a * C) * P_6$$

Where

P_o = maximized detention volume determined using either the event capture ratio or the volume capture ratio as its basis (watershed in.)

a = regression constant from least-squares analysis

C = watershed runoff coefficient

P_6 = mean storm precipitation (watershed in.)

		Drain time of capture volume		
		12 hours	24 hours	48 hours
Event capture ratio	a =	1.109	1.299	1.545
	r ² =	0.97	0.91	0.85
Volume capture ratio	a =	1.312	1.582	1.963
	r ² =	0.80	0.93	0.85

Where r² = correlation of determination coefficient, which ranges from 0.80 to 0.97, implies a strong level of reliability

This value was incorrectly used in the Central Coast Requirements for determining both the Retention Volume and the Water Quality Volume using the 85th and 95th percentile runoff events, respectively. The end result is doubling the volume of runoff that must be retained and treated onsite, and in the case of the 95th percentile storm event, which is already double the 85th percentile, that results in a four-fold oversizing of retention volume and water quality treatment.

It is unclear how this sizing factor relates to provision for water quality treatment, because Attachment D is not referenced under PR#2 (Water Quality) where the 85th percentile is cited, but rather under PR#3 (Retention). Also unclear how the sizing factor relates to the Attachment E, which addresses a ten percent adjustment to the Retention Requirement, resulting in a minimum area of (10% of the Equivalent Impervious Surface Area) that must be dedicated to structural Storm Water Control Measures. Considering this is a surface area that is to be devoted to a volume retention requirement, it is unclear if Storm Water Control Measures should therefore be sized very deep to accommodate the four-fold oversizing of retention volume and water quality treatment volume within a given surface area.

For those Watershed Management Zones where a 95th percentile is the retention storm event, this results in multiplying the runoff produced by a 95th percentile event by 1.963, practically doubling the retention volume required. This applies to both the water quality storm size, and the retention storm size.

Other areas of concern in the recently-adopted Central Coast Post-Construction Requirements that were not addressed in the CASQA's July 6 letter include:

- Net Impervious Area, which is the used for calculating the area for Water Quality Treatment (PR2 Provision (a))
- Adjustments to the Runoff Retention requirements for redevelopment based on whether project is located in an Urban Sustainability Area or not
- Equivalent Impervious Surface Area, which is used to calculate the area dedicated to structural SCMs, includes a table of correction factors for mostly-pervious surfaces such as pervious concrete (0.60), pervious asphalt (0.55), stone (0.25), grass (0.1), and

“managed turf” (varies from 0.15-0.25 depending on Hydrologic Soil Group). If measures such as pervious concrete and asphalt are counted towards a site’s imperviousness, there is disincentive to use these measures.

- “10% Rule” (PR3 Retention provision (e)), which is the minimum Equivalent Impervious Surface Area (Attachment E) of the project that must be dedicated to “retention-based Storm Water Control Measures” (not defined). It is unclear how this relates to the Retention Volume and Water Quality Volume calculated in Attachment D.
- Off-Site Retention Requirements (Attachment F), which includes an “On-site Retention Feasibility Factor” which is the ratio of the Design Retention Volume (of Attachment D) managed on-site to the actual area allocated to structural SCMs, which is measured in cubic feet per square feet. Then this value is compared to Actual Off-site Mitigation Retention Volume. CASQA is unclear whether these calculations result in effective performance requirements.

Many of these elements are completely new and unfamiliar, or borrow elements taken from various programs, but taken altogether are unclear and certainly unproven as to their effectiveness or ease of implementation. Given the level of complexity in these new provisions, and the challenges of providing meaningful comment CASQA strongly recommends deletion of any reference to and inclusion of the Central Coast Post-Construction Requirements.

Instead, CASQA recommends to a permit cycle to implement the current administrative draft of the Phase II permit, which incorporates straightforward and implementable LID and “baseline hydromodification management” requirements, which has already been carefully reviewed and crafted resulting in a relatively noncontroversial requirement that will likely accomplish most or all of the hydrologic controls sought by the Central Coast Post-Construction Requirements.

State Water Board staff have indicated that the reopener would occur upon delineation of watershed management zones, similar to that produced for the Central Coast. The Central Coast’s watershed management zones are based solely on underlying geology and slope and as such, delineating these zones is not the challenge. The challenge is what hydromodification standards will be applied. In Region 3, that criteria is retention of all events up to and including the 95th percentile storm event for projects > 15,000 sq ft in delineated watershed management zones that overly a groundwater basin. This criteria ends up applying to the majority of urban areas, where cities were historically founded on areas of gentle slopes with good soil and available water, like alluvial fans.



July 6, 2012

Mr. Dominic Roques
California Regional Water Quality Control Board
Central Coast Region

Subject: Comments on the Draft Resolution Approving Post-Construction Stormwater Management Requirements for Developing Projects in the Central Coast Region

Dear Mr. Roques:

The California Stormwater Quality Association appreciates this opportunity to comment on the subject Draft Resolution Approving Post-Construction Stormwater Management Requirements for Developing Projects in the Central Coast Region (“Draft Resolution”) and Attachment 1 of the Draft Resolution containing the Post-Construction Stormwater Management Requirements (“Post-Construction Requirements”). CASQA typically comments on regional requirements only when there is an issue of potential statewide significance. Accordingly, we are compelled to provide specific comments on some of the provisions of the Post-Construction Requirements for the Central Coast Region. However, before we provide our specific comments we offer the following observations and comments:

- CASQA is very concerned with the apparent escalation in permit requirements being conducted by the various Water Board permit writers in drafting provisions for land development. Over the last few years we have seen the ratcheting up of new development requirements in each MS4 permit renewal without allowing time to assess the impact/effectiveness of the prior development requirements. This lack of a cohesive approach and standard has created an uneven playing field for communities and developers. Furthermore, the clear absence of any consensus within the State on what the requirements are for land development (particularly with respect to Hydromodification Management) is damaging to the credibility of the entire stormwater program.
- The proposed Central Coast requirements ignore the 1993 State Water Board definition of maximum extent practicable (MEP)¹ that clearly established public acceptance and a reasonable cost:benefit calculation as fundamental tenets of MEP.

Our specific concerns are listed below and expanded upon in the remaining part of the letter:

1. The requirement to retain runoff from storm events up to the 95th percentile 24-hour rainfall event is unreasonable, infeasible for many projects, has no demonstrated additional environmental benefit and is not cost-effective.

¹ See E. Jennings, Office of Chief Counsel, 2/11/93 memo to A. Mathews, Division of Water Quality regarding “Definition of Maximum Extent Practicable”.

CASQA comments on the Draft Resolution Approving Post-Construction Stormwater Management Requirements for Developing Projects in the Central Coast Region

2. The hydromodification management (HM) standard requiring matching post-project to pre-project peak flows for the 2- through 100-year events, in combination with a runoff retention standard, is inconsistent with HM studies and approaches to date and may not be as protective of creek channels as a flow duration control approach. There is no technical basis to deviate from the extensive study that has been completed on hydromodification elsewhere in the State.
3. The retention and HM requirements, and some of the LID requirements, are inconsistent and go beyond those of existing or proposed statewide, regional, or local Phase I or Phase II MS4 permits in California.
4. Schedules for adoption of the Draft Resolution and Draft Phase II Permit need to be better coordinated, and the adoption of the Draft Resolution should be delayed.

A discussion of our specific concerns is presented below:

- 1. The requirement to retain runoff from storm events up to the 95th percentile 24-hour rainfall event is unreasonable, infeasible for many projects, has no demonstrated additional environmental benefit, and is not cost-effective.**

The Draft Resolution designates 10 watershed management zones (WMZs) based on receiving water type, geology and percent slope. Projects that create and/or replace 15,000 square feet of impervious surface in WMZs 1 and 2, and portions of WMZs 4, 7, and 10 that overlie designated Groundwater Basins are required to retain runoff from storm events up to the 95th percentile 24-hour rainfall event. Based on Table 5 of the Draft Technical Support Document (Attachment 2 of the Draft Resolution), this requirement would apply to 72-86% of the Central Coast's urban area (depending on the extent of the groundwater basins), so this requirement will have a significant impact on development projects in the region.

It is well established that water quality control measures are most economical and efficient when they target small, frequent storm events that over time produce more total runoff than the larger, infrequent storms targeted for design of flood control facilities. Typically, design criteria for water quality control BMPs are set to coincide with the "knee of the curve", i.e., the point of inflection where the magnitude of the event (and corresponding cost of facilities) increases more rapidly than the number of events captured. In other words, targeting design storms larger than this point will produce volume retention gains but at considerable incremental cost². Capturing this additional incremental volume beyond the 85th percentile has not been demonstrated to be more protective than the standard adopted by the rest of the State.

In fact, this is the very basis of the criteria in most Phase I MS4 permits and the draft Phase II permit for sizing stormwater control measures to capture the 85th percentile, 24-hour storm. This storm event was determined to be the "maximized" or "optimized"

² CASQA Stormwater BMP Handbook, New Development and Redevelopment, 2003.

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capture volume based on studies by Urbonas, et. al. in the 1990s. These studies led to the development of an approach for estimating the maximized stormwater quality capture volume presented in “Urban Runoff Quality Management”, which is referenced by most permits as one of the acceptable approaches for computing the water quality design volume³.

The technical analysis of the feasibility of the 95th percentile storm standard did not take total facility cost or cost-effectiveness into account. The 95th percentile, 24-hour storm volume is approximately twice that of the 85th percentile 24-hour storm. A sensitivity analysis performed for the City of Denver showed that doubling the maximized capture volume results in a very small increase in the total annual runoff captured.⁴ While doubling the size of a facility to retain the 95th vs. the 85th percentile storm may not completely double the capital cost of the facility, it will likely double the opportunity cost, i.e., the surface area of the site that must be used for the stormwater control measure and can't be used for other purposes.

During the public workshop on the Draft Resolution held on June 6, 2012, Mr. Robert Ketley of the City of Watsonville presented a case study demonstrating the difficulty of retaining the 95th percentile storm in the Central Coast development environment.⁵ The case study involved a 3-acre commercial redevelopment project in Watsonville that would be 89% impervious (11% landscaped area). The site is in WMZ 1 and would have to retain the 95th percentile event (1.23 inches) by infiltration. The case study used median values for soil infiltration rates for Hydrologic Group A, B, C, and D soils and assumed a 72-hour maximum drawdown time. Given these assumptions, it was estimated that the surface area of the infiltration facilities would require 7% of the site area for A and B soils, 16% of the site area for C soils, and 69% of the site area for D soils. Water Board staff replied that these were conservative assumptions, and that by their estimates, type A/B soils, C soils, and D soils require about 5%, 10% and 40% of the site area dedicated to the BMP, respectively. However, these values are still significantly greater than the amount of the site needed for retention of the 85th percentile storm.

CASQA appreciates that the Draft Resolution includes some incentives for smart growth and redevelopment in currently urbanized areas of the Central Coast. These include allowing redevelopment projects to retain the runoff volume from only half of the replaced or new/replaced impervious surface (depending on whether or not the project is in an Urban Sustainability Area). However, retention of the 95th percentile storm will still be challenging for redevelopment projects, and infeasible for those with D soils.

The Draft Resolution's standard for retention of the 95th percentile storm seems to be based, in part, on the Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act of 2007 (EISA). However, the Draft Resolution takes only part of the

³ WEF Manual of Practice No. 23/ASCE Manual and Report on Engineering Practice No. 87, 1998.

⁴ Ibid., Table 5.3, p. 174.

⁵ See the workshop presentation posted on the Central Coast Water Board's website:

http://www.waterboards.ca.gov/centralcoast/water_issues/programs/stormwater/docs/lid/workshop_2.pdf

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Section 438 Technical Guidance and does not include specific language and options in the federal Act that could make implementation feasible. Specifically:

- Section 438 Technical Guidance provides an option for site specific hydrologic analysis to demonstrate a match to pre-development flow rates and volumes instead of using the generalized 95th percentile approach.
- Section 438 Technical Guidance always provides options of evapotranspiration and harvesting and reuse as opposed to the Draft Resolution, which requires only infiltration, be used for most areas where development will occur.
- Section 438 Technical Guidance includes specific conditions that can be used to justify a determination that it is not technically feasible to fully implement the criteria, such as small project sites, soils that cannot be sufficiently amended to provide for the requisite infiltration rates, and where rainwater harvesting and use is not practical.
- Where a determination of technical infeasibility has been made, projects can be approved based on implementation to the maximum extent technically feasible whereas the Draft Resolution requires off-site compliance regardless of whether a feasible off-site option is available to the applicant.

CASQA strongly requests that either the retention standard be reduced to the 85th percentile storm or that more flexibility be provided in implementing the standard up to a certain level of feasibility or cost.

- 2. The hydromodification management standard requiring matching post-project to pre-project peak flows for the 2- through 100-year events, in combination with a runoff retention standard, is inconsistent with hydromodification management studies and approaches to date and may not be as protective of creek channels as a flow duration control approach. There is no technical basis to deviate from the extensive study that has been completed on hydromodification elsewhere in the State.**

The hydromodification management standard used in many Phase I permits throughout the State is that “increases in runoff flow and volume shall be managed so that post-project runoff shall not exceed pre-project peak flows, volumes and durations”⁶.

Numerous studies have documented that matching peak flows alone for a range of storms is not protective of streams because flow durations are increased and can cause adverse erosive impacts. This fact is recognized by the Central Coast Water Board in Attachment 2 of the Draft Resolution, which states that:

⁶ Example taken from the San Francisco Bay Region, Municipal Regional Stormwater NPDES Permit, Order No. R2-2009-0074, as revised November 28, 2011, Provision C.3.g.

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“Water Board staff recognizes that peak management alone is not sufficient to protect downstream receiving waters due to the extended flow durations that can still cause adverse impacts. However, Water Board staff anticipates that the Peak Management criterion, when used in combination with the Runoff Retention requirement, will achieve a broad spectrum of watershed process protection while also protecting stream channels from hydromodification impacts. Water Board staff’s judgment is based on the fact that the retention requirement is expected to avoid gross changes in the distribution of runoff between surface and subsurface flow paths for smaller events, and that peak management is expected to provide critical stream protection from the larger events, starting conservatively at the 2-year storm event.”

This combination standard has not been thoroughly studied as to its effectiveness in protecting streams, nor is it consistent with current approaches throughout the State that have been studied. We also have concerns about 1) using retention of the 95th percentile storm as the method to address the effects of smaller events, which appears to go beyond requirements to replicate the pre-project (as well as the pre-development) condition; and 2) requiring peak flow matching up to the 100-year event.

- Retention of the 95th percentile storm – The specific criterion that addresses the smaller events is to “prevent offsite discharge from events up to the 95th percentile rainfall event as determined by local rainfall data”. This statement means that projects need to be designed to discharge runoff only during rare events. For example, in the City of Salinas, the 95th percentile rainfall event is 0.98 inches. There were only 42 days during the 30-year period from 1979 through 2008, an average of 1.4 days per year, when rainfall exceeded this depth⁷. Limiting discharge of runoff to an average of 1.4 days per year is not consistent with maintaining predevelopment hydrologic conditions in most areas. Pre-development conditions would have typically resulted in 10 to 20 percent of rainfall from the 95th percentile event becoming runoff, depending on soil type, and more of it would run off when the ground is saturated from previous rainfall. It is not reasonable, or environmentally beneficial, to require runoff to be reduced to less than pre-development conditions.
- Peak flow matching to the 100-year event – Discrete event criteria such as these have not been shown to be an appropriate basis for hydromodification management. This type of criteria may be appropriate to size detention basins to mitigate for potential impacts to local storm drainage systems, but because determination of peak flows is dependent on time of concentration, the approach is not generally applicable to a receiving stream that has a time of concentration significantly different than the site being developed. In addition, requiring discrete event matching up to the 100-year storm is excessive and not cost-effective. Studies conducted for the Santa Clara Valley Urban Runoff Program on the effects of increased flows on the erosion potential of streams showed that a significant amount of erosive “work done” (90-95%) on the channel bed and bank is associated

⁷ Pers. comm. with Harvey Oslick, RBF Consulting, consultant to the City of Salinas, who conducted the rainfall analysis.

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with flows up to the 10-year peak flow. Flows higher than the 10-year peak flow perform a very small percentage of the total work (5-10%) because they occur infrequently over the period of record.⁸

The flow duration control approach being used by Phase I communities in the State has proven to be feasible, numerous technical studies have shown that the approach is protective of streams, and technical tools such as the Bay Area Hydrology Model (BAHM) have simplified the use of continuous simulation models. Taking a similar approach to Phase I permits would also make implementation more straightforward for Central Coast MS4s that are Phase I MS4s (i.e., City of Salinas) as well as those adjoining Phase I MS4s (i.e., south Santa Clara County).

CASQA recommends that the Draft Resolution be revised to contain a HM approach that is consistent with other permits.

3. The retention and HM requirements, and some of the LID requirements, are inconsistent with and go beyond those of existing or proposed state-wide, regional, or local Phase I or Phase II MS4 permits in California.

The Draft Resolution states that the maximum extent practicable standard “is an ever-evolving, flexible, and advancing concept, which considers technical and economic feasibility”, and that the proposed Post-Construction Requirements “are consistent with the evolving MEP standard.” CASQA is very concerned that the “evolving MEP standard” expressed by the proposed Post-Construction Requirements is inconsistent with the MEP standard in all other California stormwater permits, is not technically well supported, and did not consider economic feasibility, as discussed earlier in our comments.

In addition to the concerns we have raised about the 95th percentile storm retention standard and the HM peak flow matching standard, we are also concerned about the following inconsistencies with other California permits:

- Thresholds for HM requirements are much lower than existing or proposed permits (15,000 square feet and 22,500 square feet of created/replaced impervious surface for runoff retention and peak matching, respectively).
- Post-project vs. pre-project peak matching is required up to the 100-year storm, which is beyond most existing requirements and more appropriate for flood control facilities.
- The options for LID treatment or runoff retention on project sites do not include infiltration trenches, basins, and drywells, and no explanation for this is provided in the Draft Resolution or attachments. The Draft Resolution states that these so-called “conventional designs” are only allowed for use in meeting retention

⁸ SCVURPPP, 2005. Hydromodification Management Plan - Final Report.

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requirements where LID measures are infeasible. When properly sited and designed, these facilities are considered acceptable in other permits as part of the suite of options for LID retention and/or treatment, and should be available options for Central Coast MS4s as well.

- A minimum planting media depth of 24 inches is required in a biofiltration system, which differs from other permits and guidance across the state, and no technical justification is provided.

CASQA strongly requests that the Post-Construction Requirements be revised to be more consistent with requirements in other Phase I and Phase II permits in the State and not be allowed to define an “evolving MEP” without sufficient technical and economic analysis and coordination with the State Water Board and other Regional Boards.

4. Schedules for adoption of the Draft Resolution and the Draft Phase II Permit need to be better coordinated and the adoption of the Draft Resolution should be delayed.

The Draft Resolution containing post-construction requirements for Central Coast MS4s is inextricably linked to the draft Phase II Permit, which is in a concurrent process of public review. Linkages or potential linkages include the following:

- Provision E.12.i of the draft Phase II Permit states that Central Coast small MS4s shall comply with the Central Coast post-construction requirements developed pursuant to the Central Coast Water Board Joint Effort for Hydromodification Control, in place of complying with the requirements set forth in Provision E.12 (except for two provisions on Planning and Building Document Updates and Source Control Requirements).
- Provision E.12.d.2.(ii)(3)c. of the draft Phase II Permit includes a reopener for LID requirements that states that the State Water Board Executive Director may evaluate newly available technical data and other information regarding the effectiveness of source control, runoff reduction, stormwater treatment, and baseline hydrograph modification management measures and may propose revisions to these criteria.
- Provision E.12.f. of the draft Phase II Permit states that, within the second year of permit implementation, the State and Regional Water Boards will determine whether the LID and hydromodification management requirements in E.12.d and E.12.e. are protective of specified watershed processes [similar to those identified in the Draft Resolution] or if modified criteria should apply.

Because of these linkages, and the possibility that Central Coast requirements could serve as model for modified criteria in the Phase II Permit, final adopted language in the Draft Resolution could affect final or future language in the Phase II Permit. The date for Central Coast Water Board consideration of adoption of the Draft Resolution is September 6, 2012, whereas the date for State Water Board consideration of adoption of

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the draft Phase II permit is expected to be sometime in October 2012. The earlier adoption of the Draft Resolution could result in inconsistencies or preclude revisions to the Phase II Permit. In addition, there are many small MS4s in regions other than the Central Coast that may be unaware of the effect that the Central Coast requirements may have on their future Phase II requirements. There should be sufficient time allowed to raise awareness of these linkages at public hearings.

CASQA strongly recommends that the adoption of the Draft Resolution be delayed until after the adoption of the Phase II Permit.

We thank you again for the opportunity to provide our comments and we ask that the Central Coast Water Board carefully consider them. If you have any questions, please contact CASQA Executive Director Geoff Brosseau at (650) 365-8620.

Sincerely,

A handwritten signature in black ink that reads "Richard Boon". The signature is written in a cursive, slightly slanted style.

Richard Boon, Chair

cc: Tom Howard, State Water Board
Jonathan Bishop, State Water Board
Vicky Whitney, State Water Board
Bruce Fujimoto, State Water Board
CASQA Board of Directors and Executive Program Committee