By *Bruce Abelli-Amen, Senior Hydrogeologist, BASELINE Environmental Consulting*
*Sandia Potter, Engineering Geologist, San Francisco Regional Water Quality Control Board*

# CEQA Projects and Cumulative Impacts to Stormwater Runoff Quality: What are the Options for Effective Mitigation?

## Introduction

When the amount of rain that falls exceeds the ability of a site to absorb the water, stormwater runoff is created. In most cases, the amount of runoff increases with development and the quality of the water decreases. Managing the quantity and quality of runoff from developed sites has been an ongoing challenge, and with increasingly stringent regulations, it is getting even more difficult and expensive. This article identifies how CEQA has historically addressed impacts associated with stormwater runoff quality and presents some thoughts about how CEQA practitioners might incorporate particular aspects of evolving water quality regulations and programs into future EIRs that more effectively mitigate water quality impacts.

## Project Level Impacts vs. Cumulative Impacts

Degradation of stormwater runoff quality typically occurs when rainfall and overland flow comes into contact with pollutants that have accumulated on exposed surfaces. The types of pollutants generally considered when evaluating new developments include sediment, nutrients, heavy metals, pathogens, organic compounds (including petroleum hydrocarbons), and pesticides. Impervious surfaces (roads, parking lots, roofs) are notorious for collecting and contributing these pollutants to runoff because they have little or no ability to infiltrate or treat pollutants, which is often accomplished by an undeveloped vegetated soil surface.

Distinguishing between project-level and cumulative stormwater quality impacts can be a challenging endeavor. In general, if the proposed project could, by itself, result in discharges of pollutants at a level that would violate water quality objectives or substantially degrade the quality of receiving waters, then the impact should be considered a "project-level" impact. An example of this might be a hillside copper mine adjacent to a creek with high habitat value. A project like this could, without contributions from other sites, discharge enough sediments and/or metals to the creek to adversely impact the creek habitat. Project-level impacts should be aggressively mitigated by project design and CEQA mitigation. Most of the time, mitigating project-level stormwater quality impacts is more straightforward than cumulative impacts. Therefore, it should come as no surprise that, in general, CEQA practitioners have historically focused on mitigation of project-level stormwater quality impacts, and left cumulative impacts largely unmitigated.

Cumulative impacts can occur when many sites within the same watershed each contribute some pollutants to runoff. When all the small contributions are added up, a real impact may occur. Cumulative stormwater quality impacts are associated with almost all projects that propose uses of increased intensity relative to existing conditions. Perhaps the most common cumulative stormwater quality impact results from "urbanization." Most urbanization is associated with an increase in impervious surfaces and automobile use. An individual project, say a new residential subdivision, would probably not, by itself, result in discharges of pollutants at a level that would violate water quality objectives or substantially degrade the quality of receiving waters. The assimilative capacity of the watershed would probably manage to receive these pollutants without measurable impact to beneficial uses. However, if you add the degraded runoff from our example subdivision to degraded runoff from all the surrounding subdivisions, the

industrial area near the river, and all the other developments in the watershed, it is likely that water quality objectives would be violated. This would be considered a cumulative impact, and with the current tools available to the CEQA practitioner, very difficult to effectively mitigate. Most EIRs require that the project incorporate an unspecified variety of Best Management Practices (e.g. grassy swales, storm drain stenciling, detentions ponds). But rarely is the effectiveness of the BMPs discussed or is any monitoring required in the EIR.

In many cases, an EIR will make the case that when the potential project-level stormwater quality impacts associated with a new development are effectively mitigated that cumulative impacts are concurrently mitigated. This claim can only be demonstrated to be true if mitigation monitoring clearly shows that the runoff from the completed development is of equal or better quality than the runoff from the predevelopment site. This type of pre- and post-project site specific water quality monitoring program is almost never required in CEQA documents (or by any regulations). Without the data, there is no way to demonstrate that a cumulative impact to water quality has been avoided by a project. If the effectiveness of mitigation cannot be confirmed, the mitigation measure is inadequate.

So what is a CEQA practitioner to do? Require every project to perform site-specific pre- and post-construction runoff water quality studies? This approach is problematic for a variety of reasons. One typical challenge is finding an agency or entity that is willing and able to perform the studies. The pre-project studies could be completed by the applicant. However, in many cases, after a project is completed, the applicant moves on to the next project and only the occupants of the site are available. It seems impractical to require homeowner associations or a group of commercial tenants to supervise and conduct scientifically valid water quality studies. Similarly, city agencies are generally unable to manage these investigations due to budget and staff limitations.

Another challenge to implementing a successful monitoring program is the complexity and cost of the data collection, analysis, and interpretation. Often, even the best funded surface water sampling programs conducted by the best water quality professionals are unable to make specific conclusions regarding sources of pollutant loading and whether impacts are occurring. To expect that individual site managers could successfully conduct effective studies may not be realistic. Furthermore, there are no funded programs in-place that are being implemented by federal, state, or local agencies that the individual site manager could rely upon to help with the science.

It may be time for CEQA practitioners to rethink their approach to mitigation of cumulative stormwater quality impacts. EIRs that do not provide effective and verifiable mitigation of these impacts are vulnerable to legal challenge. The answer to the question of how to mitigate these impacts may lie in the effective use of evolving regulations and water quality programs, mostly being implemented at the state and local level.

## The Regulation of Stormwater Quality

Historically, the regulatory agencies, with the Clean Water Act as their primary tool, have been fairly successful at reducing water pollution from "point sources" such as industrial outfalls and sewage treatment plants. Today, it is recognized that "non-point sources" such as agricultural runoff, urban stormwater, mining runoff, and other sources that typically do not flow through a pipe to a single discharge point are the greatest remaining challenges to improvement of water quality in our creeks and other water bodies.

Under the Clean Water Act, the regulatory agencies have two key programs to address stormwater runoff quality: the National Pollutant Discharge Elimination System (NPDES) and Total Maximum Daily Loads (TMDL) program. Described in an simplified way, the non-point source NPDES program tries to limit pollutant discharges and the TMDL program tries to determine how much pollutant load a given water body can take without causing harm (and then reduce the load to acceptable levels). These programs are overseen by the EPA and carried out by the State Water Resources Control Bard (State Board) and the nine California Regional Water Quality Control Boards (Regional Boards).

National Pollutant Discharge Elimination System (NPDES)

The main purpose of the non-point source NPDES program is to minimize the amount of pollutants that enter stormwater runoff and to eliminate non-stormwater discharges (e.g. truck wash water, boiler blow down) that could reduce the quality of receiving waters. This is a straightforward sounding goal. However, in an attempt to achieve this goal and implement the Clean Water Act, the State and Regional Boards have created a complex system of Individual, Areawide and General permits that target new construction, industrial sites, and municipalities among others. This program is difficult for most laypeople to understand, and therefore implement properly. Furthermore, the General Permit that cover most sites are largely self-monitored compliance programs that involve very little Regional Board oversight and direction (i.e. the discharger that may or may not understand the program is responsible for its implementation).

The NPDES program requires that new projects be designed so that discharges of pollutants are minimized during construction and during the operational life of the project. Typically, the permitting of the construction-phase is managed under a Statewide General Construction Activity permit. The General Permit was developed by the State Board to apply to most construction activities within the state. By agreeing to its terms and requirements, developers/contractors can apply to be

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covered under the General Permit by filling out a two-page form and paying a fee.

Actual compliance with the provisions of the General Construction Activity permit (which includes preparing and implementing a Storm Water Pollution Prevention Plan [SWPPP]) is largely self-monitored. As a practical matter, Regional Board staff may never see the SWPPP or visit the construction site. In some cases, a pro-active local agency may conduct site inspections, but enforcement can be inconsistent. This is an important reason why most EIRs designate construction-related impacts to stormwater runoff quality as a significant impact requiring mitigation rather than self-mitigated by existing regulations. In an effort to provide a complete mitigation measure, an EIR will typically require that representatives from the local agency review the applicant's SWPPP, ensure that the SWPPP meets the requirements of the General Permit, and conduct regular site inspections. A difficult problem with this approach to mitigating construction-related impacts is achieving consistent standards and verification of effective mitigation.

Reducing pollutant discharges during the operational life of the project is mostly about designing into the project features that will prevent and/or treat pollutant discharges for many many years. The CEQA process is generally inefficient at substantially changing the design of a project. It often seems that the CEQA practitioner is involved both too early and too late in the process to be effective. Too late because the applicant has already completed a preliminary design and is often unwilling to substantially modify the design because of increased cost and time delays. Too early because it is only at the final design stage that actual BMPs are typically specified and sized. This situation has left the CEQA practitioner in an almost advisory role, limited to providing suggestions to be implemented later; not exactly strict verifiable mitigation.

Total Maximum Daily Load (TMDL) Program

Another important water quality program that has been gaining momentum in the last five years is TMDL program, required under provisions of federal Clean Water Act. A TMDL represents the quantity of specific pollutants that a water body can receive without resulting in impacts to the designated beneficial uses of that water body. Under the current program, if a water body is designated as "impaired" for one or more pollutants by a Regional Board, then a TMDL must be developed for each pollutant causing the impairment and a plan for attainment of water quality objectives must be developed and implemented.

If a proposed project site drains to a creek or other water body that is listed as impaired for a particular pollutant(s), the EIR should indicate this and evaluate whether the project would be likely to contribute any additional loading of the listed pollutant(s). If there is any chance that the project could increase that specific pollutant load, then a significant cumulative impact is certain and not speculative (the Regional Board has determined that the assimilative capacity of that water body for that pollutant has already been exceeded therefore it is impaired). This method of determining cumulative impacts has been underused by CEQA practitioners.

If a TMDL has been adopted for the listed water body, then CEQA review should provide a discussion of how the project would be consistent with the TMDL implementation plan for water quality improvement. The project, after mitigation, should not contribute to existing water quality problems and should, where possible, aid in attainment of water quality objectives. In reality, the Regional Boards have designated many water bodies as impaired and have, as of now, adopted very few TMDL programs. Further, the Regional Boards' programs are segmented from each other. TMDL program staff is not routinely notified of new development proposals and therefore comment letters on the Notice of Preparation from a Regional Board rarely include any mention of TMDL concerns associated with new development.

## Potentially Effective Mitigation

How can today's CEQA practitioner prepare an effective and legally defensible stormwater runoff quality impact and mitigation analysis and do it within the limited budgets available? We certainly cannot dramatically and instantaneously change the landscape of new development, but we can move incrementally toward an approach that makes sense and is consistent with developing regulations such as the following:

1) Analyze a proposed project for both project-level and cumulative water quality impacts. Clearly describe both types of impacts and whether they are likely to occur as a result of the proposed project.

2) Require aggressive on-site mitigation measures for any project-level impacts identified.

3) Explain in the CEQA analysis all that is being done under the NPDES and TMDL regulatory programs to mitigate potential cumulative impacts. Many of the new municipal permits are requiring more aggressive operational-period BMPs. Find out how the city or county that the project site is located in is complying with the NPDES requirements. Has that agency developed a Stormwater Management Plan? What are the specific provisions of the plan that apply to the proposed project? Is the proposed project in compliance with the plan?

Check the 303(d) list maintained by each of the Regional Boards and determine whether the project site under review drains to one of the impaired water bodies. Remember that even if the runoff does not drain directly into one of the listed waterways, discharge to an upstream tributary must also be considered a contribution to the listed water body. If the site could contribute additional load of a listed pollutant, then a significant cumulative impact would occur and specific mitigation is required.

4) In many cases, the only practical mitigation for cumulative runoff water quality impacts within a watershed is the presence and ongoing actions of an effective urban stormwater management program administered by a city or county agency. These agencies have the ability to do public outreach and education, water quality monitoring and data assessment, and specify required BMPs for new development.

Completing a mitigation measure (i.e. demonstrating effectiveness) may require that the CEQA practitioner provide evidence that the local agency is implementing an effective stormwater management program. This evidence could come in the form of 1) demonstrated compliance with NPDES requirements, 2) improving water quality monitoring results within the watershed, and/or 3) testimonials from Regional Board staff regarding the program. In large part, it is the positive track record established by a local stormwater program that would allow for the potential cumulative impact associated with the current project under review to be designated as "adequately mitigated" in the EIR since much of the CEQA-specified mitigation (which is usually general in nature) would occur in the future. Without a certain confidence that the project would be constructed and operated under the careful inspection of an effective stormwater program, this mitigation measure is not adequate and the impact should be designated unavoidable and adverse.

## Conclusions

There is still much to be done to reduce the effects of non-point source pollution on our waterways. Unfortunately, most of the effective measures that are needed cannot be required in project-level EIRs. Measures like watershed-wide stream buffers, regional facilities for peak runoff reduction, robust stormwater quality ordinances, more rigorous road maintenance and repair standards, culvert design and construction standards, and Integrated Pest Management requirements are best implemented on a regional basis (preferably a watershed basis). The planners and CEQA practitioners should make an effort to include as many of these measures as possible when updating General Plans and other regional environmental documents

As regulations and technology evolves, the approach within CEQA documents to address water quality impacts from non-point sources must also evolve. CEQA practitioners must stay up to date on the NPDES and TMDL programs, as well as new water treatment technologies. Often the best answer is not the one relied on in the past. For example, grassy swales for stormwater treatment may not make sense in many cases because of the vast amounts of irrigation water required to maintain them in the long dry season of California. In an era of budget cuts and reduced staffing at regional and local regulatory agencies, it is becoming more and more the responsibility of the CEQA practitioner to develop a viable mitigation package for each project reviewed that ties together the NPDES permit process, TMDL considerations, local regulations, and new technologies.

*Bruce Abelli-Amen is a Senior Hydrogeologist at BASELINE Environmental Consulting. He can be reached at bruce@baseline-env.com.*

*Sandia Potter is an Engineering Geologist at the San Francisco Regional Water Quality Control Board. She can be reached at smp@rb2.swrcb.ca.gov.*