February 27, 2008

Mr. Dale Bowyer
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Subject: Municipal Regional Stormwater Permit Tentative Order Comments (NPDES No. CAS612008)

Dear Mr. Bowyer,

Thank you for the opportunity to comment on the Municipal Regional Stormwater Permit Tentative Order. My comments will be focused on the provision C.3 for New Development and Redevelopment, specifically the standards and requirements in relate to the selection, design, operation and maintenance of post-construction BMPs.

Provision C.3.c Low Impact Development (LID)

It is encouraging to see the Low Impact Development (LID) section in this Tentative Order takes a comprehensive management approach to address the stormwater runoff pollution. The objective of the LID approach is to maintain or replicate a site's predevelopment hydrology and protect the beneficial uses of receiving waters through practices that "reduce the discharge of pollutants in stormwater runoff from Regulated Projects to the maximum extent practicable".

However, there are provisions under this section that potentially discourage a holistic and comprehensive approach to achieve the goal.

Section C.3.c (3) Stormwater Treatment Requirements impose an administrative stormwater treatment system selection hierarchy which requires all Regulated Projects to select stormwater treatment systems in the following order of preference:

(a) Stormwater treatment systems that reduce runoff, store stormwater for beneficial reuse, and enhance infiltration to the extent that is practical and safe;

(b) Multi-benefit natural feature stormwater treatment systems, such as landscape based bioretention systems, vegetated swales, tree wells, planter boxes, and green roofs; and

(c) Prefabricated and/or proprietary stormwater treatment systems.

This "order of preference" in selecting stormwater treatment systems is very confusing and discouraging for the following reasons:

1. Many stormwater treatment systems could fit into multiple categories. For example proprietary BMPs such as permeable pavement, infiltrating chambers and modular bioretention cells fit equally well under preferences (a) and (c).

2. Imposing the "order of preference" will inevitability lead to policies that tend to accept "preferred systems" disregarding factors of land use activity, expected pollutants of concern, BMP effectiveness, site constraints and maintenance requirement. Implementing this preference order in project review may result in selection of inappropriate and less efficient systems to address certain pollutants of concerns for specific projects. For example, subsurface proprietary BMPs can be designed to provide superior treatment and volume control on sites where trash removal, pollutant sequestration, and spill control is required. They may be more effective in protecting wildlife, public health, aesthetics or other uses of the overlying land since pollutants are stored out of contact with humans and the natural environment. It is "out of sight". However, it won't be "out of mind" since the permit requires reporting of operation and maintenance responsibilities. Such solutions would be discouraged by the stated preference in the permit when they may in fact be more suitable than landscape-based systems.
3. The stated preference is not proving by the scientific research and monitoring data for these systems in regards to the water quality criteria. For example, International stormwater BMP database showed better performance of media filter compared to biofilter (vegetated swales) in analysis of treatment system performance for total suspended solids (TSS), total dissolved solids (TDS), total Phosphorous and dissolved phosphorous etc. The endeavored effort from ASCE, APWA, WERF, FHWA and EPA to establish this database is to provide a consistent and scientifically defensible set of data on BMP design and related performance. Ignoring the scientific database and imposing a subjective order of preference is discouraging and unacceptable.
4. The stated "order of preference" in selecting stormwater treatment systems in the tentative order imposes a false distinction between public domain system and the proprietary product. The implication is the inferior performance of "prefabricated and/or proprietary" systems.
    a. Proprietary systems are required to conduct extensive lab and field testing in accordance with various rigorous technology verification programs before being accepted by the agencies. In comparison, most of the public domain stormwater treatment systems are not required to be monitored to prove effectiveness before adoption.
    b. Manufacture consistency in the prefabricated/proprietary product ensures the consistent performance of the systems. In comparison, experience in design and construction varies which will result in inconsistent levels of performance of these public domain engineered system.
    c. The distinction of the proprietary is that a party, or proprietor, exercises private ownership, control or use over an item of property, usually to the exclusion of other parties. The ownership of property has no bearing on the system's performance.
    d. All treatment systems, whether it is public domain or proprietary, contain engineering component which dictate the proper function of the unit. Consistent engineering design criteria and performance verification shall be imposed to both

systems. In the meantime, long-term maintenance and monitoring will testify the effectiveness of the systems. Programs and permits shall not offset the benefits of the proprietary products.

5. Imposing this preference order provides no incentive to the industry to develop novel stormwater treatment systems. The fact that the systems are "prefabricated or proprietary" makes them "inferior" and always be the least resort.

From all aspects, this preference order does not encourage thorough analysis of the site condition and comprehensive approach to achieve the Low Impact goal. Most likely, this preference order will create administrative barriers to the engineers and regulators when they select the stormwater treatment methods which are suitable to the application.

Therefore, it is strongly recommended that this preference order be removed. Instead, a performance based and design process focused approach shall be set forth in selection of stormwater treatment systems.

Stormwater Treatment Systems Selection - A Design Process Focused Approach

Storm Water Panel Recommendations to the State Board report (June 2006) on the feasibility of numeric effluent limits articulated some of the most glaring deficiencies in post construction municipal stormwater management programs. Prominent themes are the lack of long term accountability for performance of BMPs, improper BMP design, improper BMP selection and a tendency to maintain BMPs only for aesthetic purposes. They recommend selection and design municipal BMPs "more rigorously with respect to the physical, chemical and/or biological processes (e.g. unit processes) that take place within them". A program for the selection, design and implementation of stormwater treatment systems should be developed with these observations in mind.

The following criteria are important for any stormwater treatment BMPs, regardless of whether they are natural landscape-based or manufactured solutions:

- The fundamental unit processes that the BMP employs must address the pollutants and/or parameters of concern, the forms that the pollutants or parameters are in, the hydraulic and hydrologic nature that they are likely to arrive at the BMP.
- The BMPs must be properly sited considering physical site constraints, hydraulic and hydrologic conditions, and maintenance access.
- The BMPs must be designed to facilitate maintenance and must have a clear long-term plan for maintenance in place with an agreed upon responsible party.
- BMPs must be adequately designed to have medium or high effectiveness for the pollutants of concern during the design storm.
- BMPs must be designed to resist erosion during peak events.
- Control over construction, operation & maintenance must be demonstrated so that BMPs are installed as designed, and continue to perform at acceptable levels in perpetuity.

The way to ensure that these criteria are met is to require that these factors be considered in the BMP selection and design process. It would be much more effective to replace the existing "order of preference" in the permit with an outline for a design process that BMPs are selected based on providing the highest level of performance with assured operational feasibility.

C.8. e Monitoring Projects ii. BMP Effectiveness Investigation

Permittees are required to investigate the effectiveness of one currently in-use BMP for treatment or hydromodification control to determine if it should be expanded or better-tailored. C.8.i. requires all monitoring data must be SWAMP comparable, in terms of methods and quality. However, an effective BMP monitoring program consists of many components which differ from the surface water monitoring. Some important factors for the BMP effectiveness evaluation such as test site characteristics, storm event criteria, field sampling procedure, analytical method and procedure are not addressed in the SWAMP.

Washington Department of Ecology has established the Technology Assess Protocol (TAPE) as a guidance for evaluating and reporting on the performance and appropriate use of emerging stormwater technologies. The TAPE is also used in evaluating public domain practices (i.e. biofilters). The BMP effectiveness monitoring in this permit shall be regulated to conduct the monitoring in accordance with a protocol developed for evaluating BMP effectiveness instead of the general protocol for the surface water monitoring. Otherwise, the monitoring data will not be able to provide proving evidence of effectiveness.

C.8. e Monitoring Projects iii. Dry Weather Discharges & First Flush Investigations

Permittees with pump stations listed in Table 8.4 are required to investigate dry weather flow impact and first flush characterization. Dry weather discharge has been identified as a significant source of pollution in cities like Los Angeles, Santa Monica, San Diego. Low Flow Diversion structures are being constructed to divert the dry weather flow to sanitary sewer system for treatment before discharge.

CONTECH has technology which has been used in the application of low flow diversion for the municipal project. Two case studies (City of Santa Monica and City of Pacific Grove) are included for reference. The Continuous Deflective Separation (CDS) technology has been a proven success. Compared to the traditional physical screening device for pre-treatment in the wastewater facility, the advantages of the deflective screening technology include: High efficiency; Non-Blocking Screen; No Power requirement - gravity driven; No moving parts; Ease of maintenance.

It is recommended the Board review and consider the Low Flow Diversion structure used in municipal projects from other CA cities while investigating the dry weather discharges.

Closing

Thank you again for the opportunity to comment on this tentative order. I would happy to answer any questions you may have regarding this comment letter.

Sincerely,

Hong Lin, Ph.D. PE

Regional Regulatory Manager
CONTECH Stormwater Solutions

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Enclosure

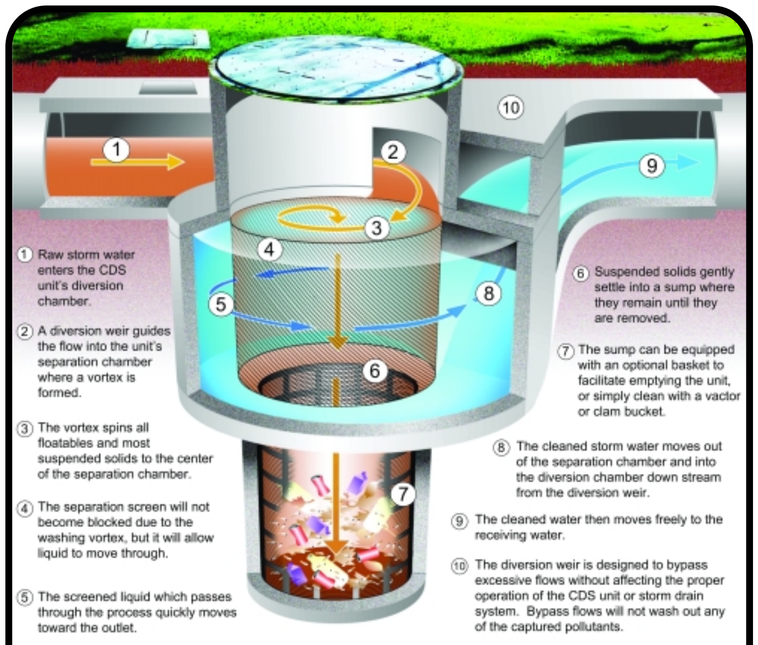
Low Flow Diversion Case Studies (City of Santa Monica and City of Pacific Grove)

Cc:

Shin-Roei Lee, Chief - South Bay Watershed Management Division, Regional Water Quality Control Board

Low Flow Diversion and Urban Runoff Treatment Project to Protect Santa Monica Bay

EVERYONE LOVES THE BEACH, yet contaminants from stormwater and dry weather urban runoff – all surface water that drains from streets, parking lots, driveways, roofs and lawns – go directly into Santa Monica Bay through storm drains, taking with it pollutants such as oil, grease, animal and human waste, trash, organic chemicals, heavy metals, and bacteria that can sicken swimmers and surfers, and harm marine life.



HOW IT WORKS

A state-of-the-art treatment system is being installed at Montana Avenue and Ocean Avenue, and at Wilshire Boulevard and Ocean Avenue to remove pollutants and re-direct the low flow treated water to the sanitary sewer system via piping connections being installed in Palisades Park. Park users will be safely detoured around the construction sites which are expected to be in place for about six months at each location. These projects will better protect the Bay's water quality and help the City meet Clean Water Act requirements.

PROJECT INFORMATION

Project Management: City of Santa Monica

Project Design: County of Los Angeles, Department of Public Works

Contractor: Mladen Buntich Construction Company, Inc.

Project Funding:
- Proposition 12, Safe Neighborhood Parks, Clean Water, Clean Air and Coastal Protection Bond Act of 2000
- Proposition 13, Costa-Machado Water Act of 2000
- Proposition 40, Clean Beaches Initiative
- County of Los Angeles
- City of Santa Monica

Acknowledgments: State Water Resources Control Board
Los Angeles Regional Water Quality Control Board

Project Hotline
(866) 755-7679

Online at
www.santa-monica.org/epwm

City of Santa Monica™

We appreciate your patience during this important environmental construction project. Please be assured that we will monitor the work closely to ensure that it is done as safely, as quietly, and as quickly as possible. However, if you have questions or concerns, please call the project hotline at (800) 755-7679. Together, we can make a difference in the water quality of Santa Monica Bay.

Project Information

PROJECT MANAGEMENT:
- City of Santa Monica

PROJECT DESIGN:
- County of Los Angeles, Department of Public Works

CONTRACTOR:
- Mladen Buntich Construction Company, Inc.

PROJECT FUNDING:
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- City of Santa Monica

ACKNOWLEDGEMENTS:
- State Water Resources Control Board
- Los Angeles Regional Water Quality Control Board

PROJECT HOTLINE:
(866) 755-7679
knowb4ugo.smgov.net

Know Before YOU GO

City of Santa Monica
1918 Main Street, Suite 300
Santa Monica, CA 90405

City of Santa Monica

New technology will dramatically **cut pollution** to the Bay.

Low Flow and Urban Runoff Diversion Structure Project – Winter 2007

Dear Neighbor...

Santa Monica

is a world-famous destination city that overlooks one of California's most precious jewels – Santa Monica Bay. Local residents and people from all over the world come to play at the beach, swim in ocean waters, and fish off Santa Monica Pier. Yet, contaminants from storm water and dry weather urban runoff – all surface water that drains from streets, parking lots, driveways, and lawns – go directly into the ocean, taking with it pollutants such as grease, animal and human waste, trash, organic chemicals, heavy metals and bacteria that can make swimmers and surfers sick, and harm marine life.

To help clean the runoff before it enters the Bay, a state-of-the-art cleaning device called a Continuous Deflective Separation or "CDS" unit, is being installed at Wilshire Boulevard and Ocean Avenue.

During **rainy** weather, the CDS device will remove litter and other large solid materials from the high volume of storm water that flows through the storm drain. During **dry** weather, urban runoff will be pumped into the sanitary sewer. The runoff will flow to the Hyperion Treatment Plant in Playa del Rey where it can be treated to a high quality before being released into the ocean or reused for landscape irrigation.

Here's what you need to know about construction.

Where:

- The CDS unit will be installed on the west side of the Wilshire Boulevard and Ocean Avenue intersection.
- The connection to the storm drain system will be made in Palisades Park.
- Pipes will be installed in Ocean Avenue to connect to the sanitary sewer system.

When:

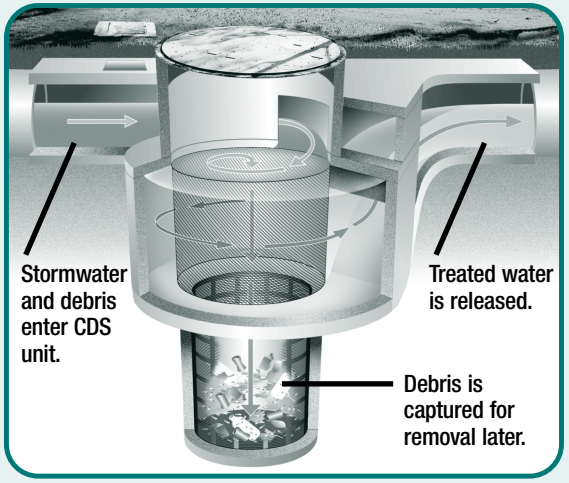
- Construction is expected to begin in February 2007 and continue for about six months. Look for updates in the mail throughout the project.
- The hours of construction will be between 8:00 AM and 4:00 PM, Monday through Friday. We do not anticipate work on weekends unless there is an emergency.

Traffic and Detours:

- For safety reasons, the north crosswalk at Wilshire/Ocean will be closed.
- Detour signs will direct pedestrians around the construction work.
- Signs will be posted in Palisades Park to send joggers and bicyclists around work areas.
- Parking will be prohibited near the construction site.

What you can expect after the work has been completed:

- Once installed, the CDS unit will not be visible to residents or businesses – it will be completely hidden 40-50 feet below ground.
- There will be no vibrations, noise or odors associated with the CDS unit.



How You Can Help

Stormwater and urban runoff is considered to be the largest source of pollution to the Bay. Here's how residents can help prevent pollution:

- Always pick up pet waste
- Keep up car maintenance to reduce leakage of oil, anti-freeze and other vehicle fluids
- Use fertilizers and pesticides sparingly and never right before it rains
- Conserve water
- Do not add to the runoff problem by over-watering grass or other landscaping, or allowing sprinkler systems to overspray onto hard surfaces
- Use a broom rather than a hose to clean sidewalks, patios and driveways
- Recycle
- Dispose of litter in trash cans

City of Santa Monica

Conserve Today. Preserve Tomorrow. Santa Monica A Sustainable Community

County of Los Angeles California

County of Los Angeles Public Works

CDS Stormwater Treatment Unit in Urban Runoff Diversion Project
Pacific Grove Case Study

Project Background

Monterey Bay is one of the nation's spectacular marine sanctuaries. Urban runoff pollution is a huge threat to the water quality and the marine life. The California central costal community has made extensive efforts to manage the urban runoff and protect the Monterey Bay. The state-of-the-art Continuous Deflective Separation (CDS) technology has been installed and used for stormwater runoff treatment by City of Monterey, Carmel-By-The-Sea in the peninsula. The Engineer, when designing the low flow diversion facility for the City of Pacific Grove, considered use of CDS unit for pretreatment prior to diverting the runoff to the sanitary sewer system.

Project Description

City of Pacific Grove constructed the urban runoff diversion system to divert dry weather urban runoff from the storm drain system into the sanitary sewer system during the non-rainfall season (beginning April 1 and ending November 1 in CA) of each year. CDS units are utilized to remove trash, debris and sediments. After the pre-treatment, the dry weather runoff flow is pumped to the sanitary sewer system.

Engineering Solutions

The scope of the current project was diverting the dry weather flow from two mixed-use drainage basins in Pacific Grove. The drainage system in each basin accepts runoff from numerous storm drain interceptor manholes distributed across the entire drainage area. Previously the runoff from these two drainage basins is discharged into Monterey Bay through two major drainage pipes at the end. The project constructed the pump stations and control to divert the dry-weather runoff into sanitary sewer system. Two CDS units were designed to pre-treat the runoff before diversion.

Drainage area 1 – Total Drainage area of 7.42 acres

Water quality flow required to be treated is 2-yr 1-hr storm. The CDS unit specified is an inline model PMSU30_20 unit with a design treatment capacity of 2.0-cfs and peak capacity of 6.13 cfs. The PMSU unit is retrofitted on the existing 24" RCP drainage pipe.

Drainage area 2 – Total area of approximately 220 acres

Due to the lack of information on the drainage area, design of the CDS unit was based on the hydraulic analysis of the existing drainage system.

An offline CDS unit model PSWC40_40 was designed with treatment capacity of 6.0 cfs and peak capacity of 150-cfs. This offline unit is retrofitted on the existing 48" RCP storm drain.

Construction started earlier 2007 and the system started operating in July 2007.

Project Cost

Total Project cost is approximately 1.22 million and the CDS units cost (equipment and construction) is 15% of the total project cost.

The Results

Low flow diversion of dry weather urban runoff provides advanced treatment of polluted runoff. CDS stormwater treatment device effectively remove trash, debris as well as sediments from the runoff before the runoff flow is pumped back to the sanitary sewer system. Application of CDS units not only protects pumping structure from abrasion of debris and coarser sediment but also reduce the solid load to the sanitary sewer facility.

Compared to the traditional physical screening device for pre-treatment in the wastewater facility, the advantages of the deflective screening technology include: High efficiency; Non-Blocking Screen; No Power requirement - gravity driven; No moving parts; Ease of maintenance.

During wet weather conditions, the CDS device will also function as the stormwater treatment device to remove all kinds of particulate pollutants that flows into the storm drain.

Engineer Contact

Sherman Low, Neill Engineers Corp. (831) 624-2110 sherman@neillcorp.com

Lover’s Point Park

Existing 24” RCP outfall

Installed CDS Unit 1

CDS Installation – PSWC Unit

Construction site of the PSWC Unit – Overlooking Monterey Bay

Existing 48” RCP Outfall