

July 29, 2015

San Diego Regional Water Quality Control Board
2375 Northside Drive
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Ms. Christina Arias,

Torrent Resources designs and installs drywells for deep stormwater infiltration. We have designed and installed our systems for the past 40 years in Arizona and the last 20 years in Southern California helping to minimize downstream erosion and flooding as well as recharging groundwater aquifers. We would like to provide comments/recommendations on the drafted Water Quality Improvement Plans for the various watersheds with the San Diego region.

As we know, on-site retention is the first preference for treating stormwater in accordance with California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001 (San Diego Region MS4 Permit). Included in on-site retention is infiltration, which is typically thought of as a surface basin or trench intended to collect and hold stormwater, allowing it to infiltrate through the soil surface and percolate into the ground. Infiltration is identified as a pollutant control strategy in the WQIPs, but is often infeasible in the San Diego Region given the impermeable clays and silts normally found at, or close to, the surface. By using a drywell, we can often drill through impermeable surface soils in order to reach well-drained material such as alluvium, sand, and gravel. While drywells are not viable in areas of high groundwater, they can often make infiltration feasible on projects where it was not previously possible at the surface.

During a review of the San Diego BMP Design Manual, we noticed the following BMP Design Fact Sheets for infiltration:

- INF-1 Infiltration Basin
- INF-2 Bioretention
- INF-3 Permeable Pavement (Pollutant Control)

Conspicuously absent is a fact sheet for a drywell, which was previously included in the City of San Diego Storm Water Standards Manual, dated January 20, 2012, as well as in the County of San Diego SUSMP revised edition, dated August 1, 2012. Table 1 below identifies the page, paragraph, and context of each mention of drywell or dry well within these 2 documents.

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An evolution of McGuckin Drilling

Table 1

COUNTY OF SAN DIEGO SUSMP, REVISED AUGUST 1, 2012		
PAGE	PARAGRAPH	CONTEXT
xii	Glossary	Listed in definition of "Direct Infiltration"
xiv	Glossary	Listed in definition of "Infiltration Device"
45	Preferred Treatment Facilities	Included in list of "Infiltration Devices"
49	Criteria for Infiltration Devices	Included with Infiltration Basins, Infiltration Trenches, Unlined Retention Basins as an acceptable infiltration device

CITY OF SAN DIEGO STORM WATER STANDARDS, DATED JANUARY 20, 2012		
PAGE	PARAGRAPH	CONTEXT
4-16	Table 4-3	Identified as a Treatment Control BMP recognized as Low Impact Development with High (H) removal efficiency for all listed pollutants of concern including Bacteria.
E-2	Appendix E	Identified as a Site Design BMP to Increase Rainfall Infiltration
I-2	Table 4-1	Listed as LID strategy "Ideas for Runoff Management"
I-53	4.9	Identified in "Infiltration Facilities and Infiltration Basins"
I-53	4.9.3	Design Checklist for Dry Well
J-2	Appendix J	Included in the definition of "Direct Infiltration"
J-3	Appendix J	Included in the definition of "Infiltration Device"

Given that drywells are also used in dozens of other California cities and counties, we strongly recommend the inclusion of an additional BMP Design Fact Sheet for non-proprietary drywells, perhaps INF-4. In many areas across San Diego, the surface soils are very consolidated and often impermeable, which makes surface infiltration infeasible. However, it is our experience that in San Diego and surrounding areas the underlying soils are, in fact, highly permeable. The benefits of including drywells in the Model BMP Design Manual include higher performance from on-site retention facilities, reduction in downstream flooding and erosion, and increased recharge of underlying groundwater aquifers.

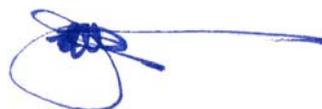
Please accept our recommendation and include an additional BMP Design Fact Sheet for drywells and include drywells as a strategy in each of the Watershed Quality Improvement Plans.

Respectfully,
Torrent Resources, Inc.



Hal Schillinger
Technical Marketing Engineer

Respectfully,
Torrent Resources, Inc.



James Mayer
Technical Marketing Engineer