Supplement to September 16, 2024
MPWMD Board Packet

Attached are copies of letters sent and/or received between **August 15, 2024** and **September 11, 2024**. These letters are listed in the Monday, September 16, 2024 Board Packet under Letters Received.

Author	Addressee	Date	Topic
David Stoldt	Senator John Laird	8/15/2024	Thank you for facilitating the July 26, 2024 community water forum on the Monterey Peninsula
Brenley McKenna	Dave Stoldt	8/19/2024	2024 WateReuse California Awards for Excellence in the category of Recycled Water Customer of the Year Award
Dakotah Bertsch	MPWMD Board	8/20/2024	Water Credits for Rainwater & Greywater

MONTEREY PENINSULA WATER MANAGEMENT DISTRICT

August 15, 2024

Senator John Laird
1021 O Street, Ste. 8720
Sacramento, CA 95814

Dear Senator,

On behalf of the Monterey Peninsula Water Management District, thank you for your efforts to facilitate the community water forum on the Monterey Peninsula July 26th at the Middlebury Institute of International Studies. The meeting was well organized, represented many voices, and provided several insights which may help guide the path forward to lifting the State Water Board's Cease and Desist Order.

We thank you for your leadership and look forward to opportunities to work together going forward.

Sincerely,

David Stoldt
General Manager
Monterey Peninsula Water Management District

cc: Kate Daniels
MPWMD Board

WATEREUSE CALIFORNIA

August 19, 2024

Dave Stoldt
dstoldt@mpwmd.net

Dear Dave,

Congratulations! *Monterey Peninsula Water Management District and California American Water* have been selected as winners of the 2024 WateReuse California Awards for Excellence in the category of **Recycled Water Customer of the Year**. These awards recognize individuals and/or projects that are making significant contributions in support of greater adoption of water reuse.

The award presentation will take place at our Awards for Excellence Luncheon on Monday, September 16, 2024 at 11:45-1:45 pm during the 2024 WateReuse California Annual Conference in Garden Grove, CA. You can find more information **HERE**.

We ask that you submit a one paragraph (no more than 125 words) description of your winning entry no later than **August 30, 2024.** This description will be used in the program at the Awards Luncheon. Please submit the paragraph to Brian Ray at bray@watereuse.org.

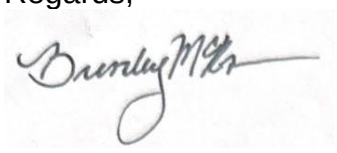
We will show the 1-minute video provided in your application during the Luncheon. If you did not submit a video, or would like to submit an updated video, please do so by **September 6, 2024.** Videos must be no longer than 1 minute in length. Please submit your video to Brian Ray at bray@watereuse.org.

We hope you or a representative from the winning organization will join us in person for the award presentation. To prepare for the Awards for Excellence Luncheon and presentation, please provide the name of the person(s) who will accept the award to Brian Ray (bray@watereuse.org) by **September 6, 2024.**

Due to the timing of media announcements, anticipation in learning the names of the winners at the conference and other considerations, we respectfully request your cooperation in not publicizing your award until after the September 16th ceremony. Thank you!

If you have any questions, please contact Brian Ray at bray@watereuse.org. Once again, congratulations and thank you for your leadership and efforts on behalf of water recycling!

Regards,



Brenley McKenna
Managing Director

DAKOTAH BERTSCH LANDSCAPE ARCHITECTURE
PLACE-BASED LANDSCAPES & WATER HARVESTING SYSTEMS
www.dbladesign.com | CA LA-6218

WATER CREDITS FOR RAINWATER & GREYWATER

Letter to the Board of Directors, MPWMD Re: Resolution 2022-08

Dakotah Bertsch, PLA
212 Brook Ave
Santa Cruz, CA 95062
dak@dbladesign.com
831-291-5253

Aug 20, 2024

Board of Directors
Monterey Peninsula Water Management District
5 Harris Court, Building G
Monterey, CA 93940

Dear Members of the Board,

I am writing to you as a licensed Landscape Architect with extensive experience in sustainable water management, specializing in the design of rainwater and graywater systems, with numerous successfully completed projects throughout the Monterey Bay and San Francisco Bay Areas. Notably, I designed the first rainwater harvesting system in your District to receive water credits. My commitment to advancing sustainable practices motivates me to request a reconsideration of Resolution 2022-08, which currently restricts additional rainwater and graywater projects from achieving water credits in the future.

The project nearing completion at 25965 Junipero Street, Carmel, exemplifies the potential of rainwater harvesting. This system will capture rainwater from both the main house and a newly constructed ADU, storing it in an underground cistern beneath the driveway. The collected water will then be filtered and used indoors for non-potable applications including toilet flushing and clothes washing. To secure the necessary water credits, I provided detailed calculations and projections demonstrating that this system would meet the fixtures' annual demand, even in challenging dry years. This project is intended to be a model of what can be achieved through careful planning and innovative design.

It was disheartening to learn that the Board had decided to discontinue water credits for future rainwater and graywater systems before the Carmel project even commenced, making it potentially the first and last of its kind in your District. Resolution 2022-08, which amended Rule 25.5, Table 4 by removing credits for such systems, appears to have been based on various concerns as recorded in the

minutes of your March 21, 2022 meeting. I would like to address these specific concerns and propose a renewed, more nuanced approach to providing water credits for rainwater and graywater systems.

First, I would like to define rainwater and graywater, and how they are typically used, as many concerns appeared to address them collectively, and perhaps they should be considered individually.

Rainwater harvesting systems collect rain runoff only from roofs or other manmade, aboveground, impervious surfaces. Rainwater is a source of relatively clean water suitable for many uses. The California Plumbing Code (CPC) has a chapter dedicated to Non-potable Rainwater Catchment Systems (Chapter 16), which describes allowable uses including toilet flushing and clothes washing, as well as irrigation, fountains, and other uses. I have designed numerous rainwater harvesting systems for indoor non-potable use, such as the one in Carmel, as well as many others for irrigation. Recently, I even encountered a bottled rainwater beverage in the grocery store. Rainwater systems are still most commonly used for irrigation in California, however in many cases, indoor non-potable and even potable rainwater uses make good sense.

Graywater systems, on the other hand, reuse wastewater from indoor fixtures such as baths, showers, clothes washing machines, and lavatories. CPC Ch. 15 provides a framework for graywater irrigation use with minimal filtration. However, if graywater is to be used indoors for non-potable uses like toilet flushing, more intensive filtration is needed, and current Code requires the system to achieve certification under NSF 350. While I have designed numerous graywater *irrigation* systems, I have not yet designed a graywater system for indoor use. However, there are a handful of companies that provide pre-certified graywater recycling systems for indoor use.

For any type of non-potable water system, the current California Plumbing Code ensures adherence with building and safety standards that protect the inhabitants, the environment, and the municipal water supply. Rainwater and graywater systems for indoor use are required by Code to be permitted by local jurisdictions, regardless of whether water credits are granted. Now I would like to address each of the concerns from the March 21, 2022 Board Meeting:

1. System Capacity: *"There is a requirement that the system "capacity" must be designed to meet 100 percent of the annual demand of the plumbed fixture(s), plus three days. In a small-scale setting such as in an Accessory Dwelling Unit or Single-Family Dwelling, this may not be possible depending on the cleaning habits and number of occupant(s). If the system uses rainwater, dry years such as last year might not provide enough water to meet demand."*

While capacity may sometimes be a design constraint for smaller projects, this problem can often be solved through creative design. The collection area can be expanded by including water from multiple structures, as illustrated in the Carmel project, where *rainwater* caught from both ADU and house roofs supply toilets and laundry, even in drought years. If that approach is unfeasible, a smaller capacity system could provide water to fewer fixtures for fewer credits. Provided it can be demonstrated that the given system will supply the demand of fixtures supplied, design challenges should not preclude the awarding of water credits.

Furthermore, I would encourage a more nuanced wording of this capacity requirement. In the case of *rainwater*, the storage capacity can be smaller than the estimated annual water use of the fixtures supplied, because indoor fixtures use water throughout the year. During the rainy season, the tank can

be filled, then drawn down by use, and refilled again multiple times. Therefore, it is only necessary to size the tank to last through the dry season. For the Carmel project, I projected the cistern's performance based on historical rainfall data and indoor demand to demonstrate that the storage capacity would be sufficient.

In the case of *graywater* systems, much smaller storage tanks are required — only up to 250 gallons for residential projects, per Code. This is because *graywater* becomes anaerobic (smelly) after prolonged storage. Therefore, these systems usually do not store more than the estimated graywater production of 1-2 days, based on the number of occupants. The ability of such systems to meet the demand of the fixtures supplied, in the case of indoor non-potable *graywater* use (which, again, is currently uncommon), should be evaluated based on the balance between production versus demand on a daily basis, not on an annual basis.

Here are some rough numbers for demonstration:

- 1,000 sq. ft. of roof can catch over 7,000 gallons of rainwater with only 12" of rainfall.
- Code estimates that one person produces over 14,000 gallons of graywater per year.
- A low-flow toilet consumes around 3,000 gallons per year, if flushed 5 times per day.

2. Backup Water Supply: *"The Monterey County Environmental Health Bureau requires a reliable backup water supply to augment the Graywater system, if needed. The resolutions adopted by the Board specify that this should be done by adding a metered auto-fill Potable water inflow valve to the Graywater storage tank, meaning that there is no Potable water available for use at the fixture. However, if the project involves retrofitting an existing building, the Potable plumbing to the fixtures must be permanently removed and replaced with the Graywater system, requiring a plumbing permit and the potential for cross-connection issues."*

In the Carmel project example, the ADU is new construction, so installing new supply lines to fixtures was not a concern. The house was also remodeled, and replacing bathroom plumbing was no problem. Building permits were obtained, and the building inspector performed a cross-connection test as required by Code. Permitting and testing, and the presence of a backup water system, while adding complexity, should not be grounds for disallowing credits for well-executed projects otherwise approved by local jurisdictions.

3. Permitting, Testing, and Feasibility: *"Monterey County Environmental Health Bureau must issue a permit for a Graywater treatment system. As part of their permit process, a backflow survey is required. The Graywater plumbing system must be entirely separate from the Potable system to avoid any potential cross-contamination of the Potable supply within the home(s). It makes sense to install a separate Graywater system during construction of a new building where a building inspector can easily oversee the installation. It does not make sense to replumb an entire existing home to accommodate a Graywater system, especially when it must involve permanent removal of plumbing to toilets and clothes washers to meet the District's definition of "Permanent Abandonment of Use."*

While the permitting process for graywater systems can be rigorous, including backflow prevention and cross-connection testing, per existing Code, these requirements are manageable and necessary for ensuring safety. As with the Carmel project example, projects that involve remodeling or new construction can make re-plumbing more feasible. In other situations, some fixtures may be more accessible than others, and the feasibility should be evaluated by the designer and/or builder on a case-by-case basis. Water credits can be granted on a per-fixture basis, and it is not always necessary to re-plumb the entire existing home. In any case, while construction projects inevitably involve costs and

challenges, they are voluntary endeavors that should be evaluated on an individual basis rather than face blanket restrictions.

4. Backflow Preventer Maintenance: *"Cal-Am is requiring that a backflow preventer be installed on any property that has a Graywater system for flushing toilets or washing laundry. Backflow devices require periodic testing and maintenance and are registered with Cal-Am. Water customers must contract with a licensed professional to perform the required tests and make any necessary repairs."*

While backflow prevention and maintenance requirements are acknowledged, these measures are standard and manageable. Water customers can be required to agree to take responsibility for these measures, but this should not preclude the awarding of credits.

5. Metering and Monitoring: *"If the Board were to allow a credit for a Graywater system, there must be meters on the inflow to the treatment system, outflow to the plumbing system, and a meter on the Cal-Am backup fill. The meters need to measure the amount of inflow into the treatment system, the amount of treated water outflow to the toilets/laundry, and the amount of Cal-Am makeup water that might be needed by the system. This information must be submitted to the District annually for a period of five years, which requires resources to contact the property owner and follow up."*

Metering and reporting requirements are standard and manageable, and should not preclude the awarding of water credits. It should be noted, however, that metering the inflows of graywater or rainwater to systems would present a technical challenge, as water meters are generally not available for non-pressurized, unfiltered water in large diameter drainage pipes. However, installing meters on the Cal-Am makeup water and the system outflow is standard and will provide all the information needed. By subtracting the makeup water from the outflow, one can calculate the amount of non-potable water that has been used. Regardless, while following up on projects annually may imply a small demand on the District's time and resources, I would submit that it is worthwhile for the water savings and to advance sustainable systems.

6. Makeup Water Use: *"Regular use of Potable makeup water should result in the revocation of a credit and a requirement to permit the water fixtures supplied by the Graywater system at full Capacity."*

It is reasonable to monitor and potentially revoke credits based on consistent use of potable makeup water. However, a flexible approach that includes a warning system or capacity expansion options could better support property owners in maintaining system efficacy.

7. Building Inspector Involvement: *"District staff is reliant on the Jurisdiction's Building Inspector to verify that the plumbing systems are separate and that there is no Potable plumbing to the fixtures for which credit is being given."*

The involvement of building inspectors is standard procedure for projects of this type. Building inspectors play a crucial role in verifying system compliance with existing codes governing rainwater and graywater systems. As with all building projects where permitting is required, their involvement should not be a barrier, but rather an integral part of the process to ensure proper installation and function.

8. Waste Removal: *"Low flow toilets work best with some flow from showers and sinks to boost the removal of waste from the domestic line into the sewer system. By creating a separate system for supplying the toilets, the flush is not augmented with additional Graywater. This could potentially result in backups."*

Concerns about low-flow toilets and potential backups relate specifically to *graywater* systems and should not affect *rainwater* systems at all. This potential concern has never been a problem on the dozens of graywater systems I have been involved with, and my experience indicates that this can be managed with proper design.

9. Maintenance Commitments: *"Graywater systems require maintenance. There is a long-term property owner commitment associated with installation of a Graywater system. Graywater systems make sense in a Multi-Family Dwelling where management is committed to maintenance and operation of the system, but may be inappropriate for single-family dwellings, especially if the originator of the Graywater system sells and a new owner is less committed to its maintenance."*

While ongoing maintenance is required, detailed operation and maintenance manuals, and owner maintenance agreements, along with deed restrictions where necessary, ensure that property owners remain committed to system upkeep. This should not preclude the granting of credits if the systems are properly maintained.

In light of these considerations, I urge the Board to reconsider the limitations imposed by Resolution 2022-08. By supporting water credits for rainwater and graywater systems, you will foster innovation and sustainability, which are crucial for meeting our long-term water conservation goals. A revised approach can incentivize water conservation while acknowledging the need for permitting where required, compliance with existing codes, and adherence to the District's specific requirements for meeting fixture demand, monitoring makeup water use, and committing to ongoing maintenance.

Additionally, extending credits to irrigation systems could further enhance water savings. As you are probably aware, landscape irrigation systems tend to consume a large percentage of municipal water, and supplying them with non-potable water can have a significant impact. *Greywater* is especially suited for irrigation, even on compact properties, due to being produced daily and requiring minimal storage.

Thank you for your time and consideration. I am available to discuss this further and provide any additional information that may assist in this evaluation.

Sincerely,

Dakotah Bertsch, PLA